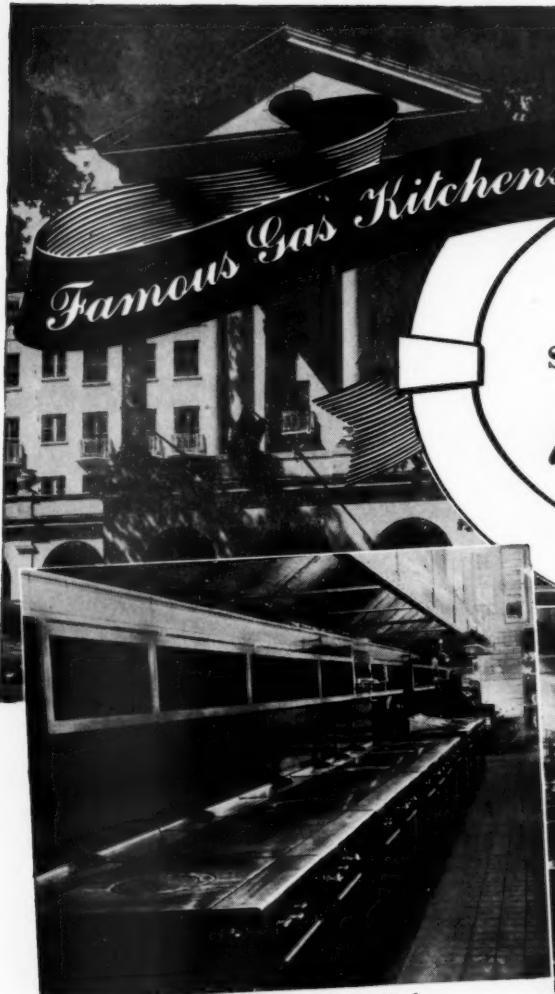


AMERICAN GAS ASSOCIATION

Monthly

JUNE 1949





The famous Greenbrier Kitchen

*Famous Gas Kitchens*

**The GREENBRIER**  
WHITE SULPHUR SPRINGS  
STRESSES THE  
*Adaptability of GAS*

For a Continental Cuisine  
in the Southern Tradition



An outstanding example of efficiency in the  
arrangement of modern Gas Equipment

CULINARY PERFECTION is one of the proudest boasts of the management of The Greenbrier. This world-famed West Virginia resort hotel has established its reputation for fine food and perfect food service in many years catering to the varied tastes of an exacting clientele drawn from two continents.

To maintain these traditions, and increase the operating efficiency of the hotel kitchens, the executives of The Greenbrier completely modernized the cooking

facilities. Of course, the new installation is a modern Gas Kitchen equipped with—

Hot Top Ranges	Salamanders
Deep Fat Fryers	Roasting Ovens
Radiant Broilers	Bake Ovens
Coffee Urns	Griddles
Warming Tables	Sterilizers

The adaptability of GAS for all cooking and food service requirements is evident in the wide variety of Gas Equipment used by The Greenbrier. Here the chefs de cuisine have at their command the perfect combination for preparing every dish in a continental cuisine—GAS and modern Gas Cooking Equipment.

Kitchen modernization offers many opportunities for increased profits when you select adaptable GAS and efficient Gas Equipment. You'll find it worthwhile to check up on the advantages of GAS in your food service operation.

**AMERICAN GAS ASSOCIATION**

420 LEXINGTON AVENUE, NEW YORK 17, N.Y.

MORE AND MORE...

*THE TREND IS TO GAS*

FOR ALL  
COMMERCIAL COOKING



June cover photograph shows a gas well whose product will go into the pipeline of Tennessee Gas and Transmission Company

TOP billing this month goes to one of the most thought-provoking natural gas conferences ever held. Three much-talked-about papers from that meeting are given feature treatment. As a consequence this issue is dedicated to the continued growth and success of the natural gas industry. . . . President Hendee points out that all segments of the industry are working together in harmony and unity. Speaking from personal observation, Mr. Hendee tells how the Association has placed the gas industry in a strong competitive position, and praises the powerful PAR Program as an effective stimulus for united action and common purpose. . . . Manufacturers and other executives provide dramatic proof this month that results of the PAR domestic research activities are being used successfully at the grass-roots level. Recruits and established engineers alike give glowing testimonial to the value of A. G. A. domestic research bulletins. . . . The Monthly itself received national commendation in winning its third publications award for excellence. . . . In months to come every effort will be made to arm readers with valuable facts and figures so that the gas industry can continue its drive forward, "doing a job together."

JAMES M. BEALL  
MANAGER, PUBLICATIONS  
JAC A CUSHMAN  
EDITOR

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VOL. 31

NO. 6

● Subscription \$3.00 a year - Published eleven times a year by the American Gas Association, Inc. Publication Office, American Building, Brattleboro, Vt. Publication is monthly except July and August which is a bi-monthly issue. Address all communications to American Building, Brattleboro, Vermont, or to 420 Lexington Ave., New York 17, N. Y. All manuscript copy for publication should be sent to the editorial offices in New York. The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein. Entered as Second Class Matter at the Post Office at Brattleboro, Vermont, Feb. 10th, 1922, under the Act of March 3, 1879. Cable addresses: American Gas Association, "Amerigas, New York"; American Gas Association Testing Laboratories, "Amerigaslab, Cleveland."

# Spring meeting prepares natural gas



Arch N. Booth (left), U. S. Chamber of Commerce; D. A. Hulcy (center), A. G. A. vice-president and presiding officer at natural gas meeting, and Col. M. W. Walsh, Louisville, natural gas pioneer

Throughout the history of the rapidly growing natural gas industry there probably never was a more opportune moment than now to face and solve outstanding problems. With this challenging thought, D. A. Hulcy, chairman, Natural Gas Department, American Gas Association, and president, Lone Star Gas Co., Dallas, Texas, opened the forty-fourth annual meeting of the natural gas industry at French Lick Springs Hotel in French Lick, Ind., May 9 and 10.

Approximately 600 delegates from the United States and Canada responded to this challenge with rapt interest in all aspects of one of the strongest and fastest moving programs ever presented at an A. G. A. spring meeting. Two general sessions and meetings of the accounting and transmission committees produced an impressive array of information on such major problems as conservation of gas, federal and state regulation, and comparative pricing of fuels. At least six speakers brought their industry listeners up to date on recent developments on the timely subjects of catalytic reforming and storage of gas to meet peak loads.

Seldom has the case for cooperative effort been stated as lucidly as it was on the opening day by Robert W. Hendee, president, A. G. A. and Colorado Interstate Gas Co., Colorado Springs. Speaking as a natural gas man concerned with all phases of the industry's growth, Mr. Hendee declared that today working harmony and unity do exist in the gas industry to a very satisfactory degree.

"Without a doubt," he declared, "the greatest factor in unifying all sections within the Association and bringing the manufacturers individually and as an association closer to A. G. A., has been the institution of the PAR Plan. In adopting the PAR Plan more than four years ago, A. G. A. has anticipated the needs of the time and placed the industry in a leading competitive position for the intense struggle ahead." (Mr. Hendee's talk is reprinted on page 7.)

Another fateful struggle, almost unnoticed by the general public, is the battle over "creeping socialism" in the American government. An inspiring address on this "frightful danger" was delivered by Arch N. Booth, general manager,

# Industry for new advances



George H. Smith (left), director, A. G. A. Natural Gas Department, with Glenn W. Clark, Oklahoma City, Monday speaker on legal events

Peak load symposium speakers: Edwin L. Hall (left), director, A. G. A. Testing Laboratories; W. G. Rogers (center), Cleveland; Max W. Ball, Washington, D. C.

## U. S. Chamber of Commerce, Washington, D. C.

"It is obvious," he stated, "that we are much further along the road to collectivism—with the slackness, incompetence, impoverishment and destruction of individual incentive and freedom—than most people realize."

Calling upon every individual to "re-think the basic principles upon which a free society rests," Mr. Booth exhorted his listeners to become active in community and national affairs and to prove beyond any doubt that "America is still a going concern." Only in this way, he added, can the growing trend toward a "grabistic economy" be brought to a halt. (Excerpts from Mr. Booth's address are reprinted in this issue of the *MONTHLY*.)

Next event on the program was a featured address which proved of great interest to all delegates. Six of the most fundamental production problems facing the industry in the "territory of greatest reserves" were discussed in detail by William J. Murray, Jr., chairman, Texas Railroad Commission. These problems included prices restrictions on exports,

uniform standards of measurement; regulations, both federal and state; ratable take, and conservation of gas.

Mr. Murray confined his remarks to conditions in the area comprising the states of Texas, Louisiana, Oklahoma, Kansas, and New Mexico. This "territory," he showed, contains approximately 87 percent of the nation's natural gas reserves.

The speaker reviewed sentiment in these states both for and against the exportation of natural gas for use in other states, but devoted the major portion of his remarks to a consideration of conservation and ratable take. He paid particular tribute to the industry's highly successful voluntary program for utilization of casinghead gas.

"To the extent public opinion can make itself effective through legislation and regulation, it will probably require producers to offer for market and purchasers to accept for market casinghead gas which hitherto has been flared," he remarked.

Mr. Murray also predicted that "evolution of gas proration will roughly parallel that which occurred in oil prora-



Headliners at Monday Accounting Committee session: F. W. Peters (left), Tulsa, presiding officer, and H. O. Buoen, also Tulsa, who discussed natural gas accounting costs and how they can be reduced



Nitrogen Removal: (Seated, left to right) W. R. Beardsley, Colorado Springs; F. G. Kerry, New York; P. V. Mullins, Amarillo; H. J. Carson, chairman; E. G. Hammerschmidt, Chicago; A. F. Bridge, Los Angeles; C. L. Moore, El Paso; (standing) George P. Bunn, Bartlesville, Okla.; C. V. Spangler, Pittsburgh; R. A. Cattell, Washington, D. C.; V. T. Bloomer, Chicago; C. R. Anderson



Shown at Managing and Advisory meeting are: H. Carl Wolf (left), A. G. A.; C. E. Bennett, A. B. Lauderbaugh, and D. P. Hartson, all of Pittsburgh



(Left to right) R. G. Griswold, New York, N. Y.; A. F. Bridge, Los Angeles, Calif.; W. C. Beckjord, Cincinnati, and T. J. Strickler, Kansas City, Missouri



Discussing features of natural gas program: (Left to right) J. S. Moulton and P. E. Beckman, San Francisco, Calif.; A. B. Lauderbaugh, Pittsburgh, speaker



J French Robinson (left), Cleveland; F. T. Parks, Denver; J. J. Hedrick, Chicago, and E. F. Schmidt (right), Dallas, chairman, program committee



C. H. M. Burnham (left), Kansas City, Mo.; H. D. Hancock, New York; E. F. Schmidt, Dallas; R. W. Hendee, A. G. A.; R. A. Cattell, Washington, D. C.



Pipeline panel: R. T. Pursell (left), Boston; W. A. Saylor, Los Angeles; H. C. Price, Bartlesville; A. P. Maradudin, Los Angeles; moderator not shown



Some of the 600 delegates at A. G. A. Natural Gas Spring Meeting listening to opening remarks of D. A. Hulcy, A. G. A. vice-president and presiding officer

tion about 15 years ago and that, eventually, we will arrive at the situation in which the total market for gas from the State of Texas will be divided among all of the gas fields in the state upon some reasonable basis and the market thus assigned to each field will be divided among the producing wells in the field on an equitable basis.

"First consideration, however, will likely be given to the casinghead gas which is available for market and allowables will not be assigned to gas wells until the casinghead gas, which otherwise would be flared, has been furnished a market." (Mr. Murray's paper is also reprinted in this issue of the *MONTHLY*.)

A valuable mental perspective of recent legal, regulatory and legislative events affecting the natural gas industry was provided by Glenn W. Clark, vice-president and general counsel, Cities Service Gas Co., Oklahoma City.

A suitable backdrop for regulatory activities of Federal Power Commission during the past 12 months is provided, he said, by the "insatiable demands of gas consumers, the shortage of steel pipe as related to the demands therefor and the resultant inability of the industry to increase pipeline capacity as rapidly as required to keep pace with consumer demands."

Regulation by state commissions has been highlighted, Mr. Clark declared, by the recent interim order of the State Corporation Commission of Kansas fixing a minimum price for natural gas at the wellhead in the Kansas Hugoton Field.

Revolutionary new gas-making meth-

ods developed under the gas production research program of the American Gas Association have spearheaded a marked trend to High Btu oil processes throughout the gas industry. More than 30 gas utility companies have installed or are negotiating contracts to install flexible, low cost oil processes to help meet peak load demands.

While the majority of the gas utility companies adopting the new gas processes are in the manufactured gas branch of the industry, several mixed gas and natural gas companies are installing high Btu oil gas apparatus as a standby facility for meeting peak loads or as a means of expanding present production and distribution capacity at minimum cost.

Trends toward use of liquid fuels have intensified during the past year. This has been particularly true as regards adoption of the Hall process developed under the direction of Edwin L. Hall, director, A. G. A. Testing Laboratories and formerly secretary and coordinator, A. G. A. Gas Production Research Committee.

Opening a highly informative symposium on peak load problems at the Tuesday general session, Mr. Hall summarized latest developments in catalytic reforming and thermal cracking. His remarks were discussed further by E. S. Pettyjohn, director, Institute of Gas Technology, Chicago, and W. E. Steinwedell, chairman of the board, The Gas Machinery Co., Cleveland, Ohio.

Mr. Hall told the delegates that thermal cracking plants will tend to be used where there is a sustained need for peak load gas and where the savings in raw materials used will more than repay the

higher investment costs.

"Thermal cracking plants will also be used," he said, "by modifying existing water gas plants where they are available. Such plants can be used for the production of oil gas with a minimum of new investment."

During the ensuing discussion, Mr. Pettyjohn declared that the subject of catalytic reforming and thermal cracking is more important in the extension of natural gas to the Eastern Seaboard than is generally realized. The regenerative feature and the use of heavy oil makes the Hall Process competitive with natural gas in that region, he stated.

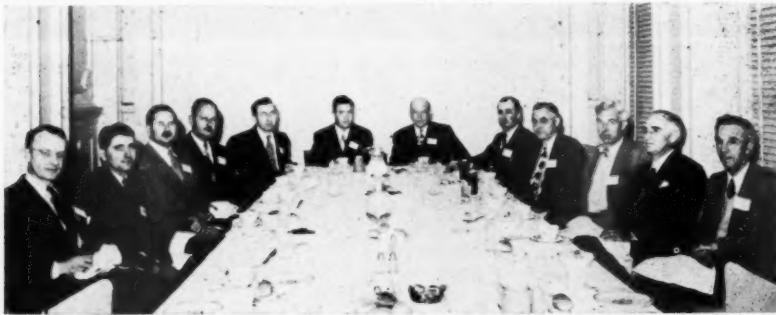
Mr. Steinwedell pointed out that natural gas for the Eastern Seaboard probably will be distributed in the large cities as a reformed or mixed gas of about 525 to about 700 Btu heating



Clifford Johnstone (left), managing director, Pacific Coast Gas Association, and F. A. Hough, chairman, A. G. A. Transmission Committee



Gas well deliveries group: (Seated, left to right) A. H. Weyland, Shreveport, La.; R. A. Cattell, Washington, D. C.; E. L. Rawlins, chairman; R. E. Heithecker, Dallas; George H. Smith, A. G. A.; H. P. George, Los Angeles; (standing) C. J. Wilhelm, Bartlesville; L. T. Potter, Dallas; C. K. Eilerts, Bartlesville



Pipeline flow luncheon meeting: (Left to right) T. L. Robey, A. G. A.; L. H. Hiteman, Washington, D. C.; W. C. Mosteller, F. A. Hough, Los Angeles; Dr. J. D. Parent, Chicago; J. W. Ferguson, Amarillo; C. H. M. Burnham, chairman; W. C. McGee, Jr., Houston; R. G. Strong, Chicago; H. S. Bean, Washington, D. C.; J. L. Foster, Dallas, and J. A. Clark, Clarksburg, West Virginia



Transmission luncheon: (Left to right) D. A. Hulcy, A. G. A. vice-president; F. A. Hough, chairman; P. E. Beckman, San Francisco; Grove Lawrence, Los Angeles; J. T. Innis, Omaha; G. F. Brunston, Colorado Springs; E. A. Koenig, Shreveport; D. C. Palm, Chicago; C. S. Coates, Houston; J. W. Kelley, Charleston, W. Va.; M. K. Hager, Kansas City, Mo., and G. P. Bunn, Bartlesville, Oklahoma



Breakfast meeting of Pipeline Subcommittee: (Left to right) J. A. Clark, Clarksburg, W. Va.; C. H. M. Burnham, Kansas City, Mo.; G. F. Brunston, Colorado Springs, Colo.; R. G. Strong, Chicago, chairman; T. L. Robey, A. G. A.; W. M. Deaton, Amarillo; K. E. Crenshaw and H. D. Hancock, New York

value. The best means of producing the desired final gas and providing peak and emergency supply, he said, will depend on the equipment those cities already have in operation and also on the heating value, specific gravity and burning characteristics of the manufactured gas now being distributed.

The next subject on the symposium—storage of gas to meet peak loads—opened with a discussion of "Economics of Underground Reservoirs" by Max W. Ball, consultant, Washington, D. C. and formerly director, Oil and Gas Division, U. S. Department of the Interior.

Mr. Ball presented a strong argument for use of underground storage but advised his listeners first to thoroughly study the economics of their company situation.

Greatest advantage of underground storage, he declared, is that it provides more storage capacity than any other method does except at prohibitive cost. A storage benefit that is sometimes overlooked is the ability to operate producing fields at an optimum year-long rate and to continue to serve markets that would otherwise have to be abandoned because of inadequate supply.

An interesting study of the comparative costs of storing natural gas in conventional holders and in pipe and bottle holders was presented next by F. A. Hough, vice-president, Southern Counties Gas Co. of California, Los Angeles. Others who helped to prepare the paper were W. C. Mosteller and R. O. Randall of the same company.

Mr. Hough showed that pipe and bottle holders are well adapted to the equation of hourly loads, to provide standby gas for emergencies resulting from the failure of primary sources of supply, and to supply the difference between normal peak-day and extreme day loads.

"Installed cost of pipe and bottle holders of optimum design for standby service, together with the necessary compressor equipment, will vary from \$40 per Mcf to \$93 per Mcf of capacity, depending upon operating conditions and the design code used," he declared.

Advantages of propane as a standby fuel were ably diagrammed by A. B. Lauderbaugh, chief gas engineer, The Manufacturers (Continued on page 28)

# Doing a job together

By ROBERT W. HENDEE

President  
American Gas Association

My thinking this year has changed considerably from a natural gas man to a gas man interested in all phases of the great gas industry. It is true that the natural gas segment has been the part which has had the phenomenal growth, but at the moment, the American Gas Association and its affiliated associations are made up of many diverse interests. We have attempted during the last several years to have all phases and interests work together for the common good in perfect harmony and unity. It safely can be said that such harmony and unity do exist to a very satisfactory degree.

Without a doubt the greatest factor in unifying all sections within the Association and bringing manufacturers individually and as an Association closer to A. G. A. has been the institution of the Promotion, Advertising and Research (PAR) Plan. One of the most important functions of a successful trade association is its ability to sense the needs of the time, to furnish the incentive and stimulus for progress and direct an industry along the proper lines of growth. In adopting the PAR Plan more than four years ago A. G. A. has anticipated the needs of the time and has placed the industry in a leading competitive position for the intense struggle ahead, (and there is no doubt that there is going to be a terrific struggle for the customer's dollar).

This plan has stepped up promotion, advertising and research efforts of the industry and its merchandising allies to an unprecedented extent. It has attracted

national attention to the industry, has increased sales, and laid the foundation for further progress. In the words of a well-known marketing publication, "It is a seldom achieved example of integration and coordination by all segments of



Mr. Hendee (above), president, Colorado Interstate Gas Co., tells from personal knowledge the value of the industry's PAR Plan

an industry working hand in glove with a trade association."

Even our principal competitor in the domestic field called the PAR Plan "intelligently conceived, practically executed, aggressive and well financed." Many other compliments from those who see the value of the plan or who feel its impact could be given.

I wish every gas man could see, as I have, the splendid results and the effectiveness of this cooperative plan.

It would be academic for me to reiterate the progress which has been made by the natural gas industry. Everyone is familiar with the tremendous increase

in natural gas sales, in revenues and in new projects in course of construction or on the drawing board. The curves are all rising at a very sharp angle. But to me the most satisfying accompanying trend is the steady growth of natural gas reserve estimates, in spite of increased withdrawals. Certainly, reserves are more than keeping pace with demands.

Comparative figures are valueless here, but it is interesting to note that the first reserve figure published—for 1918, shows reserves of about ten trillion cubic feet—about enough to last two years at the present rate of withdrawal. And in 1927, which marked the advent of the so-called long-distance, large-diameter, high-pressure pipe lines, the industry started out largely on faith, with known reserves of approximately 35 trillion feet.

At the moment it appears that holding the basic cooking, water-heating and refrigeration load is one of the most important problems faced by the industry. Competition is making an all-out play for this load, but we are aware of their efforts and American Gas Association, Gas Appliance Manufacturers Association, manufacturers and utilities are banded together in some of the most aggressive selling campaigns conceivable. You will hear more and more, and see more and more magazine advertisements about automatic gas ranges built to CP standards, the "Court of Flame" gas water heating campaign, and the "Flame of Freedom" gas refrigeration program. All of these programs are geared at the highest pitch and deserve the industry's whole-hearted support.

No president of A. G. A. should close any talk without mentioning the splendid, continuing program carried on at the testing laboratories in Cleveland and Los Angeles. Last year more than 3,000 different appliances were tested at our laboratories so as to give us satisfied customers.

And before closing, I should like to bring to your attention another of our allies—Institute of Gas Technology. Surely that organization could be and should be of invaluable assistance to the gas industry in pure or fundamental research.

If we can but maintain this spirit of aggressiveness and pursue the paths on which we are now embarked, we will face an ever-widening horizon. We're doing a job together and doing it well.

Presented at spring meeting, A. G. A. Natural Gas Department, at French Lick Springs, Ind., May 9-10, 1949.



"The research bulletins are of the greatest help to the neophyte engineer in his first dealings with the intricacies of the utilization of gas."

—Gas Equipment Engineer

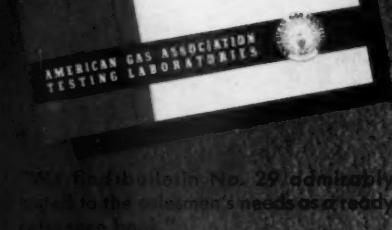
"I recently received a copy of one of the copycats of these bulletins. It is those dealing with the subject of gas cookers. I would like to add that the original is much better."

—Gas Range Manufacturer



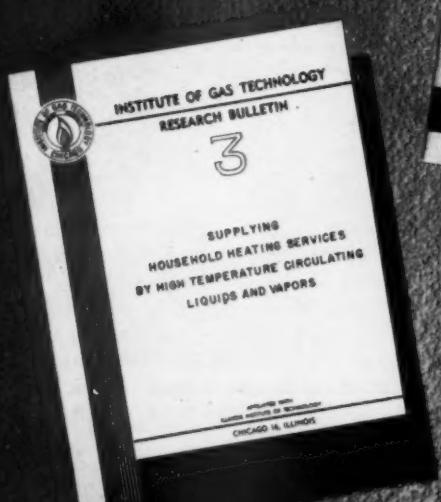
"Following the A. G. A. bulletins, we were able to make all burners on space heaters noiseless on all gases."

—Chief Engineer, Manufacturer



"Research Bulletin No. 29 admirably fits to the salesman's needs as a ready reference book."

—Appliance Design Engineer



"Perhaps the greatest value of the A. G. A. Domestic Gas Research Bulletins lies in the fact that the information is available when needed and will be still available for years to come."

—Chief Engineer, Manufacturer



# Executives glue

Gas industry executives are finding the current series of domestic research bulletins published by the American Gas Association a potent instrument for stimulating constructive thinking and a valuable source of background material on many subjects. At the same time, manufacturing engineers and designers are making ever wider use of these bulletins to further the improvement of domestic gas appliances.

Addressing the A. G. A. Domestic Research and Utilization Conference in Cleveland, March 31 and April 1, Herbert Luoma, Alabama Gas Corp., and W. R. Teller, Affiliated Gas Equipment Inc., disclosed for the first time the great influence which the domestic gas research publications have played in the industry's thinking and called for still greater employment of their fundamental data.

"A review, if not a study, of every domestic gas research bulletin by utility appliance laboratory personnel, in my opinion, is a definite must," Mr. Luoma declared.

"As a matter of keeping 'posted' it is also urged that utility executives, including sales managers, review these publications as they are issued. Arrangement of material is such that reading the abstract, introduction and summary of results and conclusions enables one to find in minimum time, in business men's language, what was accomplished and how.

"Many phases of domestic gas utilization which have been explored and presented in these bulletins are not only of interest but of value to customer service technicians," Mr. Luoma continued.

"Such subjects as venting without chimney connections, gas flame impingement, pilot performance, gum filters, galvanic corrosion, pilot thermal elements, oven and broiler heat distribution, water heater performance with cold inlet water, burner extinction noise, to

*Engineers state five definite ways in which A.G.A. research bulletins are utilized*

# Value of domestic research

name only a few, certainly fall in this category. And who will deny the worth to the service supervisory staff of subjects covering effectiveness of water heater pressure and temperature relief valves, kitchen ventilation, home humidity control, and performance of central heating units in confined spaces, which are now being studied?

"Home service workers can find information of value for carrying out their work by studying certain research bulletins," Mr. Luoma remarked. "For example, Laboratories Bulletins Nos. 35 and 44 on oven heat distribution, No. 39 on heat absorption by utensils, and Nos. 40 and 49 on kitchen ventilation would be of interest."

Concrete proof of the wide usage to which these bulletins have been put in the industry was obtained by Mr. Teller during correspondence with 21 eminently successful gas appliance engineers.

"While we had expected a mild enthusiasm for the domestic gas research activity," he stated, "we were completely unprepared for the almost universal eagerness with which new bulletins are looked forward to and the frank admission of the value of the past research data in solution of day-to-day problems."

Based on analysis of replies to his inquiry, there are five definite ways in which domestic gas research bulletins can be utilized by gas appliance engineering organizations:

(1) To help educate new engineering recruits.

(2) As general background material for engineering organizations of gas appliance manufacturers.

(3) As specific applications of research results to appliance development problems.

(4) As pertinent data for the assistance of manufacturers' sales engineering and field service representatives.

(5) As a social factor by which all

members of the gas industry can develop greater aggressiveness and vitality through sharing common knowledge.

During a period of intensifying competition, the problem of guiding and training new engineers assumes paramount importance. This fact was recognized in a recent speech by Lawrence A. Appley, president, American Management Association.

"It is nothing short of criminal," he stated, "to permit a young graduate engineer, with the investment, training, development, and potential he represents, to shift for himself without planned guidance and help, in the hope he will absorb or inhale what he needs to know or acquire about assigned work."

Answers to Mr. Teller's query indicated that veteran gas appliance engineers are finding the domestic gas research bulletins effective educational material for these young recruits.

One expert replied: "We have used them (the bulletins) as study material in orienting new engineering personnel."

Another declared: "The research bulletins are clear, concise, well-presented and in such form that they are of the greatest help to the neophyte engineer in his first dealings with the intricacies of utilization of gas. I feel the gas industry should be complimented on having available for the use of the engineer such practical handbooks or texts on fundamentals of gas utilization."

Still another engineer reported: "In several instances they (the bulletins) have served as the starting point for further specific investigations in connection with our appliance development."

One letter outlined three logical steps in use of a domestic gas research bulletin:

(1) "Study the bulletin to understand and know what was done, how it was done, what the actual observed results were, how the results were organ-

ized for the conclusions, and what the conclusions are.

(2) "Study critically and inquiringly to be sure that a physical understanding results. This understanding must be consistent technically, with experience, and analytically.

(3) "It practically follows automatically then that the new information will fill in gaps in information already understood by the reader or will range itself alongside similar problems. Thus there begins the process of utilizing the information."

Several replies to Mr. Teller's questioning indicated substantial savings in time and cost of conducting appliance development work as a result of availability of domestic gas research bulletins.

"We have found the research bulletins to be very useful in our development and research work because they have provided us with a source for information which we are unable to obtain formerly except through trial and error methods."

"I regard these publications as 'handbooks' of design and by applying the principles embodied therein, there results much saving in time and expense which would otherwise be occasioned by resort to experimentation or 'cut-and-try' methods."

These and other letters comprise impressive testimony, Mr. Teller declared. "It seems clear that a majority of our engineers have displayed ingenuity in working out excellent procedures for utilizing fully the information contained in such bulletins. It is hoped that the suggestions made by my respondents will engender an awareness on the part of all our appliance engineers of the great benefit which they can derive from a similar use of these bulletins."

Full information on domestic gas research publications can be obtained from the American Gas Association or the A.G.A. Testing Laboratories.

# Opportunity unlimited

By LOUIS RUTHENBURG

President  
*Servel, Inc.*  
Evansville, Ind.

Gas utility managements have faced many difficult problems and have had many preoccupations since the war.

No one expected such serious gas shortages to develop. No one expected operating costs to skyrocket as they have.

There was no means of anticipating the peculiar turns of FPC regulations.

Labor negotiations, FPC meetings, emergency engineering measures, difficult procurement of supplies, complex legal and financial problems, extended hearings before utility commissions and other emergencies have arisen.

All these have caused management preoccupation that has diverted its attention from long-range operational planning and from comprehensive study of appliance selling.

Utility managements have dealt courageously and effectively with a great emergency. That tough battle having been won, the time for consolidation of position and constructive preparation for another great battle is upon us.

With startling rapidity, the picture has changed.

Generous additions to gas supply are in sight. Overnight the amazing sellers' market for appliances has changed to a stubborn and lethargic buyers' market.

Electric appliances sold with intensity and effectiveness, supported and subsidized by electric utilities, encroach very dangerously upon the gas industry's essential residential load.

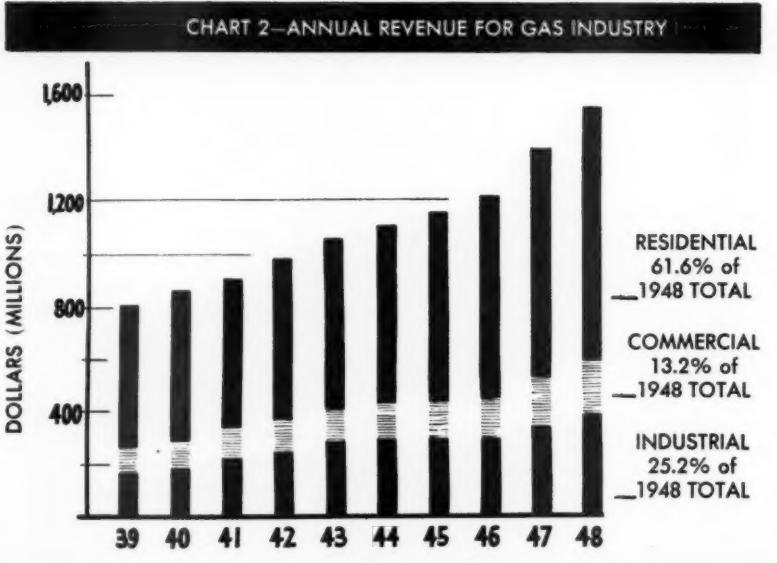
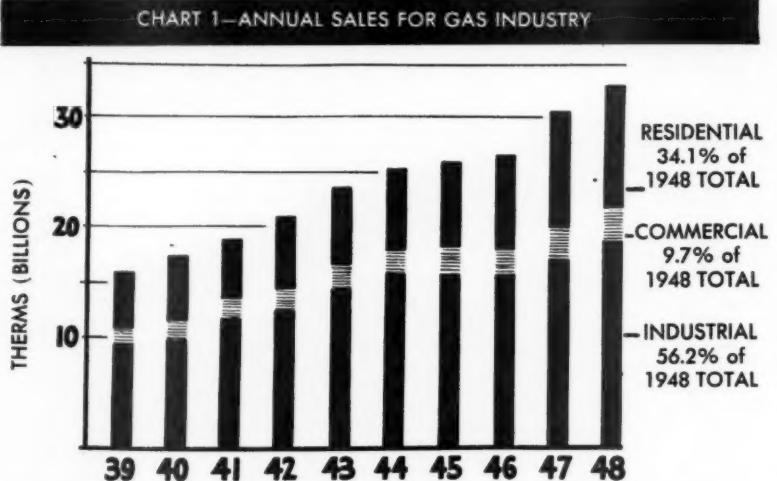
Very obviously, now is the time for action on the part of sales forces of the gas and gas appliance industries.

During and subsequent to the war, gas utility top managements and sales managements in too many instances lost effective contact.

The time has now come when it is very necessary for general managements to become keenly interested in sales making, to spend sufficient time in contact with sales management to institute comprehensive programs of research and planning essential to aggressive, effective competitive selling effort.

In many instances, these conditions are recognized by general management.

And soon the necessity will be clearly recognized by all progressive manage-



Condensed from talk presented before A. G. A. Mid-West Regional Gas Sales Conference in Chicago, March 28-30, 1949.

ments because such managements see with increasing clarity the need for making long-range selling programs that will permit the gas company to meet its public obligations and protect its ultimate profit position.

This is a factual statement, based upon very recent meetings with leading gas utility managements.

Over the years many utility companies have established enviable records in the sale of gas appliances and equipment.

But if the opportunities that lie immediately ahead of the American gas industry are fully to be developed in terms of maximum service and profit, our future sales activities must be of such scope and magnitude as to cause all past effort to seem insignificant.

The great basic fact that will affect the joint future of the gas utility and gas appliance industries is the revolutionary change that recently has come about in relative fuel prices (Chart 3).

Natural gas, long accepted as the cleanest and most efficient fuel, now is substantially cheaper than coal and petroleum fuels.

Because coal prices are largely a summation of labor and railway transportation costs, there is every reason to believe that coal costs will not be reduced in the foreseeable future.

### Prices compared

Petroleum prices are controlled by supply and demand in a free market. Visible reserves of petroleum in ratio to usage are far less than those of natural gas. Continuing and rapid expansion of demand for petroleum fuel seems inevitable. Advancing prices, therefore, are indicated.

Natural gas prices are affected in far less degree by labor costs than those of competing fuels. Gas transportation costs are relatively low and tend to increase slowly. Visible reserves are adequate. Moreover, changes in gas prices are controlled by governmental agencies which effectively suppress price volatility.

An interesting study of the natural gas industry, recently published, discloses among other facts this significant price comparison:

"In 1939 gas was ten percent more expensive than fuel oil, and 40 percent higher than coal. By 1947 natural gas had declined to half the fuel oil price and to three-quarters the price of bitumi-

nous coal. This comparison is of consumers prices in typical market areas."

These revolutionary changes in relative fuel prices have forced amazing growth and no little embarrassment and confusion upon the gas industry.

From 1932 to 1947, utility sales of natural gas increased more than three and a quarter times, utility sales of mixed gas increased more than two and three-quarter times, and that of manufactured gas increased by one-third.

There is reason to believe that the rate of growth in utility sales of natural gas will continue to accelerate for many years to come.

Clearly the basic physical and economic facts impose no limit upon the opportunities of the gas industry.

Will the confusion and growing pains engendered in many gas utilities by revolutionary change and greatly accelerated growth be succeeded by sound operating and selling programs?

Let's look at the record (Chart 1). Here is the amazing history of the growth of our great industry from 1939 through 1948.

You will observe that this chart represents gas output in billions of therms. In the 10-year period, total send-out has doubled.

Now let's convert the basis of our growth chart to millions of dollars of revenue (Chart 2). This study discloses an increase over the 10-year period from slightly over \$800 million to more than a billion and a half.

Next, let us compare the quantitative percentages with revenue percentages derived from industrial, commercial and residential sales. This, of course, is a very old story to most utility executives. Gas utility managements generally understand the great profit leverage and the vital importance of the residential load.

From these two charts it would appear that we are doing all right. But let's take another look. The residential load that bulks so big in terms of revenue includes both appliance and space heating loads.

Demands for space heating, uncontrolled and unbalanced by appliance load, may lead to intolerable load factors and unmanageable peak demands that may sadly reduce net profits.

From 1939 to 1948, the price of industrial gas has fluctuated very slightly from a level of two cents per therm

CHART 3—RESIDENTIAL FUEL COSTS PER THERM

FOR COAL, OIL AND NATURAL GAS

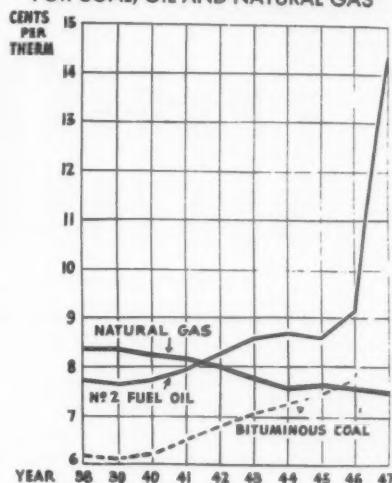


CHART 4—PRICE PER THERM  
NATURAL, MIXED AND MFD.

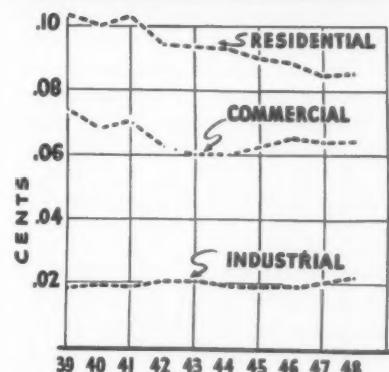


CHART 5—GAS INDUSTRY  
SALES—1948

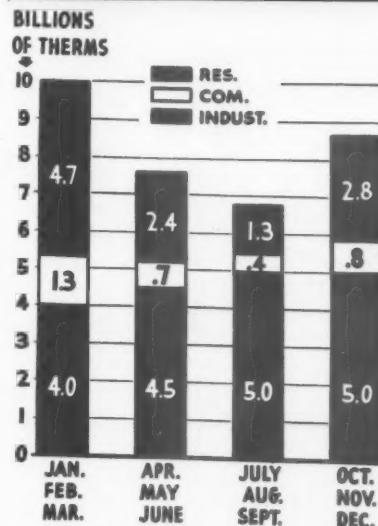


CHART 6—AVERAGE LOAD VALUE GAS REFRIGERATOR



(Chart 4). The price of commercial gas declined from approximately  $7\frac{1}{4}$  cents per therm to six cents, reaching its low between 1943 and 1944.

During the same period, the price of residential gas has declined from  $10\frac{1}{4}$  cents per therm to less than  $8\frac{1}{2}$  cents per therm. There can be little doubt that the decline in the price of residential gas is to be attributed in major degree to the enormous increase in the space heating factor.

The serious effect of space heating upon the load factor is disclosed by the 1948 send-out record (Chart 5) when the send-out of residential gas in the third quarter was only 28 percent of residential send-out in the first quarter.

Very obviously, if gas utilities are to avoid the penalties of questionable service to the public, unmanageable peak demand, serious load factor problems and net profits substantially lower than those attainable, two things must be accomplished.

First, control of the space heating send-out must be maintained; and, second, just as far as may be possible, the

space heating peak must be balanced by greatly increased installations of household appliances.

Equally obvious is the fact that these problems will become increasingly difficult if surrender of the basic residential load continues.

This point of view is well expressed in the following statement from the chairman of one of the nation's largest and most successful gas utilities, who says:

"The gas industry will not fully realize the opportunities of the future by concentrating on space heating, which presents a serious load factor problem, or by relying too greatly on industrial sales which are subject to rapid curtailment in event of economic depression.

"It seems apparent that the basic domestic load is the source of the industry's growth. Anything that can be done to remind the industry of this fact and to aid it in successfully competing with other fuels is certainly all to the good."

Rugged individualism characterizes gas utility management; and, of course, every community served by a gas utility

presents its own peculiar problems to the utility management.

I know a gas utility which has been confronted by serious difficulties. This is a manufactured gas utility, completely hemmed in by public electric power. The price of their gas is five times that at which natural gas is sold in a neighboring state. They look forward to receiving an adequate supply of natural gas.

This utility must deal with nine unions, including a unionized sales force. So little money is available to this utility that it has been unable to finance main extensions to serve new housing developments.

It has arranged with builders to assume the cost of main extensions and will rebate this cost on gas usage. It has been unable to finance service connections to individual residences, and the customer pays for these connections, receiving rebates on the monthly bill.

Last year competition caused the loss of more than two percent of their meters, but they had a six per cent increase in gas sales. It is reported that they succeeded in developing a sales volume of \$4 million at a sales cost of only \$20,000.

A sales force, including 15 outside salesmen, is well compensated by salary and automobile allowance. Floor salesmen and industrial salesmen receive generous compensation.

Although these salesmen are unionized and their hours are theoretically controlled by union rules, morale is very high. They are stimulated by competitive rivalry so that they sell after hours without added compensation. The sales manager has done a great job of building morale.

I venture to predict that when this utility receives natural gas, its management, tempered by the fire of adversity and having surmounted such great obstacles, will render a magnificent public service and will realize maximum net profits.

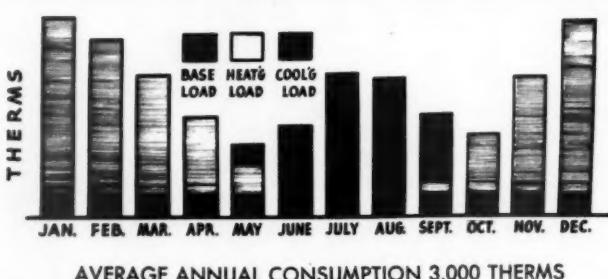
Now let's face more specific facts which bear very directly upon selling problems.

Fact No. 1—We are in a buyer's market.

Market suction has gone. Customers no longer come voluntarily to the store in sufficient numbers.

Our message must be taken into the street and into (Continued on page 41)

CHART 7—AVERAGE LOAD VALUE ALL YEAR AIR CONDITIONER





# How to keep America a "going concern"

By ARCH N. BOOTH

General Manager  
U. S. Chamber of Commerce  
Washington, D. C.

It is intriguing to wonder what kind of fix we may be in here in America, say, ten years from now, if the present unprecedented, sharp changes in our government are allowed to run their course unhampered and unchecked.

We don't have to look very hard to see that we are being pushed along rapidly toward an omnipotent state—or that an omnipotent state is being forced upon us.

We seem to be living under what might be called, for want of a better name, a *grab-istic* economy.

Too many people would rather sit around and divide up the existing wealth than create new wealth to add to the existing supply.

Likewise, too many communities are grabbing for what they call "our share of Government dollars." This sets up a vicious competition among states and cities for "free" federal funds.

In the early days, the frontier of the country used to be in the West; today the frontier could be said to be on the steps of the Federal Treasury.

"O.K." the government officials say (those who believe this way), "so you

Condensed from paper presented before Spring Meeting, A. G. A. Natural Gas Department at French Lick, Ind., May 9 and 10, 1949.

want something for nothing. Well, we'll give it to you.

"We'll give you security from cradle to the grave.

"We'll give you free medical care, low-cost housing, subsidized food, social insurance, cheap electricity, abundant steel, reclamation projects galore, recreation—whatever your heart desires, and it won't cost you a cent—except in taxes—and the other fellow in the rich part of the country will pay most of the taxes."

It would take far more time and too much space to outline all the various schemes the social-planners in the government have fashioned, *and are now promoting*, to turn America into a welfare state. But I'll touch on a few of them:

(1) First on the list is *overly-expanded social security*. There's nothing the matter with social security as such. It's a good thing, so long as the aim is to provide a basic floor or protection against destitution.

Social insurance benefits, paid as a matter of right, are a better means than public relief of dealing with the economic consequences of old age, unemployment and premature death.

But the lavish social security programs now being considered by Congress would come to cost nearly 20 percent of the country's payroll.

And the *cost in dollars* of overexpanded social security is scarcely half the story. There are greater costs involved—costs that rob the individual of his character and his will to work, and that rob the nation of its production.

With overly generous benefits on the

one hand, and increasing taxes on the other, little reason would remain for a man to try to get ahead. After the incentives are largely gone, the next step is a breakdown of industrial discipline. Absenteeism, malingering and fraudulent claims increase. Promotion drops. People become indifferent, cynical.

These things are not imaginary. They have happened elsewhere—in Germany, for example; and in England, too, where they now have "womb-to-womb" security.

(2) We have here in America the best doctors, dentists, nurses and hospitals in the world—the best medical care. Yet we now face the theory that our national health can be improved if we make our medical care as much as possible like that in France and England—where it is terrible.

The sponsors of "socialized medicine" estimate that it will cost us a "paltry" \$6 billion a year. The program would be financed by an added three percent payroll tax split between workers and employers, plus \$1,500,000,000 a year from the bottomless Federal Treasury.

Other techniques and devices now in operation, or in the planning stage, for replacing free enterprise in America with state-controlled economy include the progressive income tax, estate and inheritance taxes, and the food allotment program now pending in Congress.

All these things are steps toward socialism. All are steps away from personal freedom.

All these things cost money—a terrific lot of money! The estimated budget

for the fiscal year 1950 is \$41,900,000,000.

That's more than ten times as great as the average annual budget through the twenties, following World War I. It figures out as an average federal tax of \$312 on every man, woman and child in the United States—an average federal tax of \$1,248 on a family of four—for just one year.

It is obvious that we are much further along the road to collectivism—with its slackness, incompetence, impoverishment and *destruction of individual incentive and freedom*—than most people realize.

"What can I do about it?" That is the question the responsible, self-respecting, conscientious citizen is asking himself these days.

"What can I do to help meet this serious threat against our American way of life—and to help clear up the muddled thinking that now exists in national affairs?

"Is there anything that I can do?"

*Yes, there is much that every able, earnest, sincere person can do.*

No matter who you are—or where you are—or what your work may be—or how busy you may be—you can do much to help curb today's socialistic trends.

My subject is from a piece of good advice by Daniel Webster that is carved as a frieze around the inner court walls of the National Chamber's building in Washington. The full quotation reads:

"Let us develop the resources of our land, call forth its powers, build up its institutions, promote all its great interests, and see whether we also, in our day and generation, may not *perform something worthy to be remembered.*"

You can "perform something worthy to be remembered." You count.

The first thing that each one of us can do is to deepen our own understanding of *how and why our free society* has worked so productively and well.

As true liberals, and having as our objective the genuine improvement of the economic welfare of the people, we should re-think the basic principles upon which a free society rests—and then check the wisdom of particular proposals against those principles.

This will help us burn into our souls a proper philosophy about our country and our freedom. It will give us an unshakable conviction as to why our present economic power and well-being should be continued—and further strengthened.

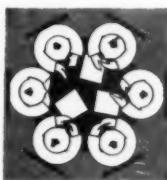
Despite all the short-sighted, plunder-

ing political plans to which we are now expended, America is not done for. We can still have trust in humanity. We can still have faith in God, as long as we have faith with *works*. And we can still have whole-hearted confidence in America. *America is still a going concern.*

Our standard of living is the highest in the world; it is higher today than it ever has been. Our productive capacity is by far the greatest of any country—greater today than it has ever been. With only about six percent of the world's population, we have more young people in high schools and colleges than all the other 94 percent put together.

We have more hospitals and more charitable institutions than all the rest of the nations put together. Looking ahead: from 1951 to 1960, our population will increase by perhaps ten million persons, according to the study of "America's Needs and Resources" made by the Twentieth Century Fund. By 1960, our industrial output could be 30 percent greater than it was in the boom year 1948. There should be 64 million persons gainfully employed by 1960, the study shows.

Yes, *America has a future*—and that future is worth saving, not only for ourselves but also (Continued on page 42)



## Industrial relations round-table

Prepared by  
A. G. A. Personnel Committee

● "The Personnel Practices Guide" is a brief outline of basic principles of personnel policy recently published by the United States Chamber of Commerce. Single copies may be obtained free. A charge is made for bulk orders, price depending on quantity.

● Employers must bargain with the union on retirement pension plans under Federal law. This was made clear by the Supreme Court's refusal to hear an appeal of the Inland Steel case which challenged the National Labor Relations Board ruling that retirement plans are a proper subject for collective bargaining.

● New Jersey's Off-the-Job Disability Insurance Program, went into effect January 1, 1949. The new law provides insurance for off-the-job sickness or accident so that the wage loss will be partially made up. The law extends unemployment compensation to

those unable to work due to sickness or accident not connected with their jobs. Employers of four or more workers, subject to the Unemployment Compensation Law of New Jersey, are also subject to the Temporary Disability Benefits Law. The same as unemployment compensation, the new law covers 40,000 employers and 1,600,000 workers in New Jersey. All workers employed by subject (unemployment compensation) employers are ordinarily covered by the state plan unless the employer provides a private plan to which a majority of workers have assented, if the workers are to contribute to the cost thereof. A private plan must (1) pay benefits equal to the state plan, (2) cost the worker no more than state plan coverage, and (3) carry no greater restrictions than the state plan.

Off-the-job disability benefits provide for a maximum of \$22 weekly for 26 weeks, and a minimum of \$9 weekly for ten weeks. Generally, a claimant for unemployment insurance or temporary disability insurance must have earned wages equal to 30 times

his weekly benefit amount, or at least \$270 in his base year.

State plan employers will pay  $\frac{1}{4}$  of one percent of their taxable payrolls into the Disability Benefits Fund in addition to their normal unemployment compensation contributions.

State plan workers will continue to pay one percent of taxable wages up to the first \$3,000 annually to the Unemployment Compensation Commission through their employers. Three-quarters of one percent of the workers' contribution will be credited to the Disability Benefits Fund, and  $\frac{1}{4}$  to the Unemployment Trust Fund, out of which moneys are made available for the payment of unemployment insurance.

If the worker is employed by a private plan employer he will, if he contributes to the cost of the plan, be subject to withholding by the employer of not more than  $\frac{3}{4}$  of one percent of his wages up to the first \$3,000 annually as his contribution.

(Continued on page 49)

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Five-state area  
comprises the  
"territory of  
greatest reserves"

# Natural gas problems

By WILLIAM J. MURRAY, JR.

Chairman, Texas  
Railroad Commission

According to a report prepared by American Gas Association on recoverable gas reserves as of January 1, 1949, the State of Texas had in round figures 96 trillion cubic feet out of a total of 174 trillion cubic feet in the nation. Thus, Texas has approximately 55 percent of the nation's proven gas reserves. Of Texas' gas reserves, approximately 27 trillion feet, which is over 28 percent of the total, are found either associated with or dissolved in crude petroleum. From these data, it may be concluded that Texas is the state of largest reserves and, consequently, any problems which affect the production of gas in Texas must have considerable significance to the gas industry of the nation. Secondly, since the gas reserves contained in our oil fields represent a very significant portion of the total reserves, the problem of gas produced incident to the production of oil is also of concern to the natural gas industry.

Condensation of paper presented before Spring Meeting, A. G. A. Natural Gas Department, at French Lick, Ind., May 9 and 10, 1949.



Furthermore, the word "territory" in this paper is not necessarily restricted in meaning to a single state. The nature of the gas reservoirs and the general problems of the industry in East Texas and the Texas Gulf Coast are very similar to those in Louisiana. Likewise, the character of reservoirs and problems in Oklahoma and Kansas are similar to those of the Texas Panhandle; and the reservoirs and problems of New Mexico are similar to those of West Texas. Each of these states keeps in close touch with the others, and each state generally profits by the successful or unsuccessful attempts of another state to solve its natural gas problems.

While I, of course, do not undertake to cover developments in any state other than Texas, I do believe that there is considerable similarity of trends in these states.

If, therefore, the term "territory" is used to encompass these additional states, we add approximately 55 trillion cubic feet of recoverable reserves. This territory then would contain 87 percent of the nation's reserves. It may be further concluded that the ten trillion plus reserves of California are of significance only to the Pacific Coast area. If you deduct these California reserves, Texas and the four states mentioned above have nearly 93 percent of the reserves east of the Pacific Coast.

The second task is to prove that there are problems affecting the natural gas industry in this territory. Since the Commission regulates only the field of production of natural gas, and since the experience of this writer has been principally in this field, consideration will be given only to problems affecting the production end of the industry. Some of the problems receiving the most discussion at present are as follows: price, restrictions on exports, uniform standards of measurement, regulations both federal and state, ratable take, and conservation.

Many producers argue that natural gas is grossly underpriced at the well head at the present time. They point out that this admittedly superior fuel on a Btu or heat value basis is priced much lower than coal at the mine or oil at the well head and after taking into account the relative transportation costs of these three fuels, the disparity still exists.

At a well price of five cents, which is above the average in Texas, an equivalent heat content price would be 30 cents per barrel for oil and \$1.25 per ton for coal. Because of this disparity and an assumed rapid increase in demand, most economists predict steadily rising prices for gas over a fairly considerable period in the future, and nearly all long-term contracts contain escalator clauses on price.

The producer argues that this present disparity in price prevents an active exploration and development program for natural gas reserves and renders many conservation projects economically unattractive. From the standpoint of the marketer of natural gas and the consumer, the probable rising prices of the future render planning more difficult than if it could be based on a relatively stable price or at least one bearing a relatively constant relation to the general commodity price index. Some states have attempted to enter the field of price through legislation, and there are presently in existence statutes fixing the minimum price for gas in some states.

material. This industrial expansion program is of particular significance in the Texas Gulf Coast region. These concerned Texans argue that restriction should be placed on the export of natural gas for a twofold purpose—one, to prevent industries needing gas supplies from obtaining these supplies through interstate pipe lines and consequently to necessitate their location at sources of supply; and two, to prevent through export the exhaustion by out of state industries of the supplies of gas needed for industries located within the state.

The official policy of Louisiana in the past of opposing such exports and the apparent abrogation of this policy at

the field of regulation of production of natural gas has brought about considerable concern and is the subject of pending legislation before Congress. Regulations of the state bodies present many problems but lie principally in the field of prevention of waste and the requiring of ratable take and will be discussed more fully below.

Of all the problems listed concerning the production of gas, the last two mentioned—those of conservation and ratable take—would appear to be the two this writer is best qualified to discuss and, from the public as well as the industry standpoint, appear to be of considerable significance.



## A.G.A. Monthly wins third award

THE A. G. A. MONTHLY has received one of the top awards in the annual contest sponsored by International Council of Industrial Editors it was announced at the eighth annual convention of that organization, May 10-12, in Toronto, Ontario. More than 600 magazines, representing the largest industries in the United States and Canada, were entered in the contest.

A wide variety of publications, including company-sponsored employee, stockholder, customer, dealer, and association magazines vied for honors in this international competition. Magazines scoring 90 or more out of a possible 100 points based on editorial excellence, appearance, and accomplishment of

purpose, received certificates of recognition. In all, 57 publications were selected for special awards.

The A. G. A. **MONTHLY** was the only top award winner among association publications with a score of 97 out of the possible 100 points. This is the third time the **MONTHLY** has entered the contest and won top honors.

The International Council of Industrial Editors is composed of 28 regional and national editors' associations, including the British and Canadian industrial editors' organizations. In recent years it has conducted an aggressive and far-reaching program to improve the caliber of industrial magazines and

*(Continued on page 52)*

There has been introduced in the current session of the Texas Legislature, a bill which would provide for the fixing of a minimum price on natural gas, but this measure has not yet come up for legislative action.

Many citizens of Texas have felt a keen concern over the rapid increase in volume of gas exported from the state. They feel that the future economic welfare of the state will depend largely upon a continuation of the present industrial development program, and that this industrial development will largely depend upon the availability of natural gas for fuel and, in many cases, raw

the present time appear to be common knowledge within the industry. The House of Representatives in the State of Texas has recently passed a resolution instructing the Texas Railroad Commission to actively oppose any additional interstate pipe lines which would export gas from Texas. Action on this resolution is presently pending before the Texas Senate. So far as is known, no similar actions are pending in the other three states.

Regulations of state and federal authorities naturally impose problems upon the producers of natural gas. Entry of the Federal Power Commission into

Conservation in the production of natural gas involves the prevention of both underground and aboveground waste. Prevention of underground loss of natural gas is not nearly so serious a problem as is the prevention of loss of recoverable oil underground. Whereas we are probably recovering on a national average less than one-third of the oil in place in our underground reservoirs, we normally attain a much higher percentage of recovery of natural gas. In gas reservoirs we must watch for casing leaks, as vast quantities of gas can quickly be lost through discharge into water-bearing horizons if the string of

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pipe set into the gas-bearing horizon becomes ruptured at some shallower depth. As our high-pressure gas fields become older and the casing has had more time to corrode, increasing diligence will be required, particularly in dual completions, to detect gas leakage before large quantities are lost.

In gas reservoirs having an effective water drive, excessive rates of production from individual wells can cause water coning; but because of the much greater difference in specific gravity between gas and water than between oil and water, this problem is not nearly so serious as in producing oil wells. As a general rule, most gas wells can be produced at relatively high rates without serious injury.

In our rich condensate fields, loss can be occasioned by retrograde condensation of liquids as the reservoir pressure is reduced. These liquids adhere to the gas-bearing reservoir rock, and a considerable portion cannot be recovered. In such cases, it is sometimes necessary to require that the field be cycled for liquid content prior to production of gas for market purposes. Such an order was issued on the Lake Creek Field of Montgomery County, Texas, but so far it has not appeared necessary to issue similar orders on many other fields.

However, when we come to the matter of production of natural gas associated in underground reservoirs with crude petroleum, we do then enter a field of very serious underground waste. In many oil fields, the principal source of energy for displacing oil out of the reservoir pore space is natural gas; and if this source of energy is dissipated, no further recovery of oil is obtained regardless of how large a percent of the original reserves may still exist in the underground reservoir. Consequently, in order to prevent serious loss of oil, it is frequently necessary to place stringent restrictions upon the production of natural gas from the gas cap of an oil reservoir. Such restrictions have gradually evolved as a clearer understanding was obtained of the role of natural gas in the production of oil, and it is believed that we may safely predict more stringent restrictions in the future.

Such restrictions necessarily involve the property rights of those producers who own gas reserves in the oil reservoir. It is felt that the public interest requires regulations which will obtain maximum oil recovery even though this

involves infringement upon property rights, but it is hoped that a system will soon be evolved for adjusting equities so that even greater conservation will be attained than that which we are presently accomplishing and yet no property owner having oil or gas reserves will be deprived of his rights.

### Voluntary conservation

Gradually, through legislation and regulation occasioned by realization of the inherent value of this gas, essentially all flaring from gas wells in Texas has been stopped. Most of the other gas producing states mentioned have passed through essentially the same cycle.

Most of the gas presently being flared is natural gas produced incident to the production of crude oil. This "casinghead" gas has been burned in flares throughout the history of the oil industry. While improved completion and production techniques have greatly reduced the average volume of gas produced with each barrel of oil, it is still generally impossible to produce a barrel of oil without producing at least the quantity of gas which is dissolved in the oil. Many producers have long argued that it is not waste to flare casinghead gas because casinghead gas has already served a useful purpose in expelling oil into the well bore and assisting in lifting it to the surface.

Gradually, however, the petroleum and natural gas industries have come to recognize that it is feasible and profitable to gather, process, and market the gas which is produced with oil. A very remarkable program of utilizing casinghead gas is presently underway. It was initiated prior to the war but has seen a more rapid development since the war than at any other period in the history of the industry. Most of this program was instituted voluntarily by the industry but with an increasing amount of pressure from public opinion and the regulatory bodies.

Most natural gas men recognize that conservation of gas is in the public interest and are thoroughly concerned about the public welfare. However, you are going to have to help pay for this gas conservation program, and the bill is going to be rather high. Furthermore, you will be inconvenienced by the necessity of taking a considerable portion of your market requirements in the form of casinghead gas which is admittedly

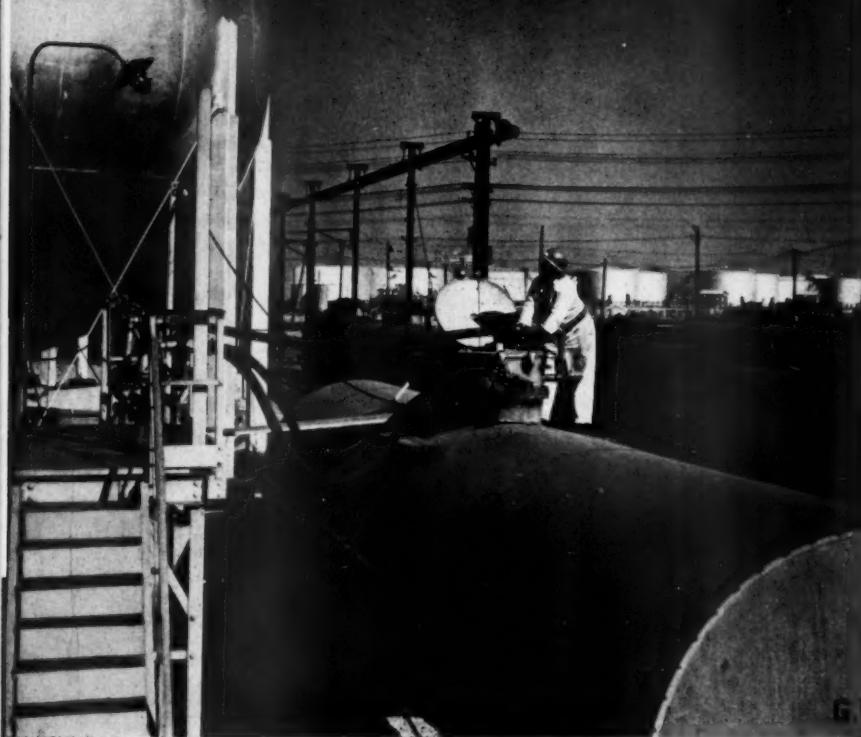
not as convenient to market as is gas from natural gas wells. It must be gathered in relatively small quantities from many producing oil wells. It is under low pressure and must be compressed. Production of casinghead gas cannot be increased or decreased to meet fluctuating market demands but is geared to the production of oil.

I firmly believe that in spite of the difficulties inherent in the marketing of casinghead gas, the pipeline companies which have gone to such efforts to furnish markets for flare gas will find that they have done a thing which is not only to the best interest of the general public but, in the long run, a very profitable measure for the companies themselves.

As previously stated, my purpose is not to exhort you the natural gas industry to conservation, but to first acknowledge that I recognize the difficulties which face the industry in furnishing a market for casinghead gas; secondly, to pay tribute to the American gas industry for having voluntarily cooperated with oil producers in this enormous gas conservation program; and thirdly, to point out, as an observer rather than a member of a regulatory body, trends which I think indicate that through legislation and regulation the purchasers of natural gas would be required, if they were not already largely doing so voluntarily, to give first consideration to affording a market to casinghead gas which otherwise must be flared.

In an effort to expedite this gas conservation program, the Commission not many months ago ordered 17 oil fields in Texas to be shut down until they could stop wasting the gas which was being produced incident to the production of oil. As most natural gas men probably are aware, the authority of the Railroad Commission to enter such orders was upheld in the State Supreme Court. The language of the court in the Heyser case apparently leaves little doubt that the Commission not only has the authority but the responsibility to take steps to require the utilization of casinghead gas.

Having been raised in the oil fields and trained as a petroleum engineer, and having always been taught to consider as practical only those operations which yielded more revenue than they cost, I am naturally exceedingly anxious that every conservation measure be a profitable one. However, the court has apparently held (*Continued on page 46*)



*Unique storage project  
mixes carloads of  
propane gas with  
natural gas and air*

# Underground storage

By H. L. FRUECHTENICHT  
JOHN B. SIMPSON

*General Superintendent and  
Engineer, Respectively  
Michigan Gas Storage Co.  
Jackson, Mich.*

**M**ichigan Gas Storage Co., a subsidiary of Consumers Power Company and Panhandle Eastern Pipe Line Co., normally receives large quantities of gas from Panhandle for storage in its gas storage fields in Clare County, Michigan during the months from May to October inclusive. It also receives gas in lesser quantities in April and November and that not needed for the daily demand of its customers is stored also. During Janu-

ary, February, March and December, a minimum of 25 million cubic feet per day is received from Panhandle and the balance of the daily demand is taken from the storage fields.

At the present time, Consumers Power Company is the only customer of Michigan Gas Storage Co., and its daily demand from Storage Company in addition to its own supply from ten Michigan fields varies from 20 million cubic feet per day in the summer to 100 million cubic feet per day in winter. Michigan Gas Storage Company divides its year into two parts; namely, input cycle from April to November inclusive, and output cycle from January to March inclusive, and the month of December.

Early in 1948 it was estimated that 12 billion cubic feet of gas had to be stored during the input cycle of 1948 in order to meet requirements of Consumers Power Company during the 1948-49 winter season and to replace the cushion

gas which had been withdrawn during the winter of 1947-48. Careful studies showed that the storage fields should not be depleted below 375 PSIG without inviting probable damage to the reservoir. However, in order that service would not be curtailed and industry shut down during the winter of 1947-48, Michigan Gas Storage Company elected to continue full service to Consumers Power Company even though the pressure fell below 375 PSIG. As a result, the cushion was depleted to 334 PSIG.

In 1946 when it appeared that a natural gas shortage was inevitable, Consumers Power Company started restricting its markets by complete curtailment of new space-heating customers, and in September, 1947, all industrial customers were placed on a quota basis (use restricted to that consumed during previous twelve-month period), and both of these restrictions were still in effect as of March 31, 1949.

Photo by Badger, Standard Oil Co. (N. J.)

Shortage of steel made it impossible to enlarge the facilities of both Michigan Gas Storage Company and Panhandle Eastern Pipe Line Company in order that full contract amounts could be delivered to, and received by Michigan Gas Storage Company. The most optimistic view of the deliveries for storage expected during the 1948 input cycle revealed a probable shortage, in meeting the estimated market and cushion replacement requirements, in excess of one billion cubic feet.

During the winter of 1947-48 when great demands were made upon the storage fields to avoid any curtailment of the restricted market served by Consumers Power Company, an increased amount of water was recorded in the wells of the storage fields. This water encroachment became greater as the pressure fell below 375 PSIG. While some damage may have been done to the storage fields when they were operating from 375 pounds down to 334 PSIG, the time the fields were operating at this lower pressure was of short duration. Any damage done is not believed at this time to be permanent.

In order to meet this anticipated deficit, engineers of Michigan Gas Stor-

age Company and Consumers Power Company studied various methods of obtaining additional gas. Sources of natural gas in Michigan were limited and no new discoveries had been made for several years, which made it impossible to secure additional local gas. Panhandle's capacity to make additional deliveries was found to be impossible at this time due to the material shortages already stated.

High Btu oil gas to be made in several existing emergency stand-by plants was considered, but the shortage of oil and operating difficulties forestalled this plan. Installation of peak-shaving propane-air units at principal distribution points was also contemplated, but the cost, amounting to several million dollars, was prohibitive and material shortages in this type of equipment were acute.

There finally emerged from these studies a plan to build one propane-air plant at the storage fields with a capacity of ten million cubic feet of propane-air, and mix propane-air gas with large amounts of natural gas and store the mixture underground. The plant could be built for approximately \$250,000 because part of the necessary equipment

(compressors, boilers and mixing tower) was installed and available for quick conversion. This plan offered continuous operation of the propane-air plant and a uniform mixture immediately available for use when needed.

As far as could be determined, mixing propane-air and natural gas for underground storage on such a large scale had never before been attempted, and some questions were raised as to recovery, vaporization, condensation, interchangeability and hydrate trouble to be encountered. Each of these factors was investigated, and the theoretical conclusions showed the plan to be workable. These findings will be mentioned again in succeeding paragraphs.

Approval for construction was given June 3, 1948, and procurement of material and construction of the facilities started immediately. Construction included building a 1,600-foot railroad spur, six unloading racks and two steel buildings, and installing three vapor compressors, two liquid transfer pumps, and one 30,000-gallon storage tank at the proposed unloading station.

A four-mile, four-inch pipeline, together with a 4,800 volt, three-phase power line and a private telephone line,

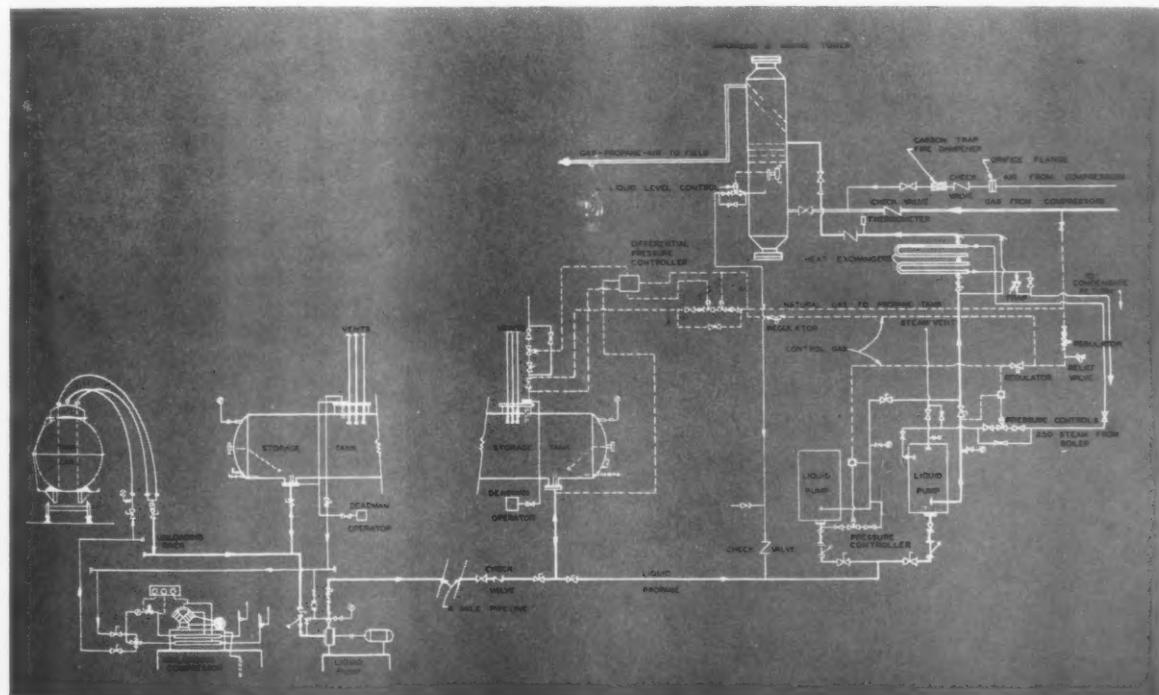


Figure 1. Diagrammatic plan of novel system constructed in Michigan for the underground storage of a propane-air and natural gas mixture

was built to connect the unloading station with the mixing station. The mixing station was incorporated with the natural gas compressor station injecting gas into the storage wells. A 30,000-gallon storage tank, two high-pressure liquid transfer pumps, a steam heat exchanger vaporizer, and one 800 hp two-stage air compressor were installed. One 800 hp single-stage gas compressor located in the main compressor building was converted to a third-stage air compressor. One of the gas compressor station dehydration contact towers was changed to a propane-air-gas mixing tower, and the necessary steam and water connections were made.

Air lines, aftercoolers, intercoolers, a carbon and fire arrester and other auxiliary equipment were installed to complete the mixing plant. This type of material was in short supply, and delivery promises tended to be much later than the conditions would allow. However, due to the emergency nature of the program, suppliers, contractors and employees cooperated to the utmost to complete the job on or before the deadline set as July 15, 1948, or a total of six weeks' working time. For a diagrammatic plan of this system, see Figure 1.

After the plant was completed and had settled into normal operation, six tank cars were unloaded at a time and the liquid pumped to the mixing station through the pipeline, with the tank at each end acting as surge tanks and reservoirs to allow flexibility in the unload-

ing operation and the pumping rate. Propane in the storage tanks was used as a supply while the vapor was being removed from the tank cars and while tank cars were being switched to the siding or shuttled along the siding to the unloading points. At the mixing station the propane was then pumped to a steam heat exchanger for vaporization and then to the mixing tower.

During the warm summer operation, the propane was by-passed around the vaporizer as the heat of compression of the air and the natural gas furnished heat for vaporization of the propane. To vaporize 100,000-140,000 gallons of propane per day from 70° F to 193° F at 540 PSIA requires 75-106 million Btu per day.

Natural gas in being compressed from an average suction pressure of 200 PSIG to a discharge pressure of 525 PSIG gave an actual discharge temperature of approximately 170° F without aftercooling. The specific heat of gas accounts for 24 Btu/Mcf/°F temperature change, and thus 40-60 million feet of gas in being cooled from 170° to the injection temperature of 70° F gave 95-144 million Btu per day available from gas compression. The third-stage air in being compressed from 90 to 475 PSIG had an actual discharge temperature of approximately 375° F and about 35,000,000 Btu per day were available from air compression.

When operations started, neither the natural gas nor air was aftercooled be-

fore mixing with the propane. However, operation proved that vaporization, by passing this hot gas-air mixture through the propane or the bubble trays in the mixing tower, did not follow the heat balance equations as the gas and air passing up through the liquid propane had a considerable atomizing or mist action. It was found that an inlet temperature of air and natural gas of 90° F regulated by the amount of aftercooling was all that was required to give the 70° F temperature desired for injection into the wells.

Air was furnished by one two-stage intercooled compressor taking six million cubic feet of air per day from atmospheric pressure and delivering the air at 90 PSIG to an aftercooler and then to one 800 hp single-stage compressor.

Third-stage air was discharged at the same pressure as the discharge pressure of the natural gas going into the storage fields. The air merged with the natural gas just before it entered the mixing tower and then the mixture of natural gas and air bubbled up through the liquid propane. The resultant mixture of propane-air-natural gas leaving the mixing tower entered the field gathering system and passed down through the wells into a sand reservoir lying approximately one-quarter of a mile below the earth's surface.

General properties of the mixture were as follows: from 100,000-140,000 gallons of propane were mixed with 40-60 million cubic feet per day of dry natural gas of 0.685 gravity and 1,000 Btu, then enough air was added to bring the mixture back to approximately the same Btu content—namely, 1,000 Btu.

At the higher rates of propane use—140,000 gallons or more—the 1,000 Btu standard could not be maintained, as the air compressor capacity was limited to six million CFD. The pressure on the mixture varied from 400 PSIG to 525 PSIG in being compressed and stored in the field. The bottom hole or reservoir temperature was 60° F. Vapor pressure of the propane at this temperature was approximately 92 PSIG. The propane-air varied from approximately 15 to 25 percent of the total mixture and the propane varied from 6-11 percent. Partial pressures due to the propane varied from 31 PSIG to 58 PSIG and the propane therefore never condensed either in the field lines (Continued on page 50)

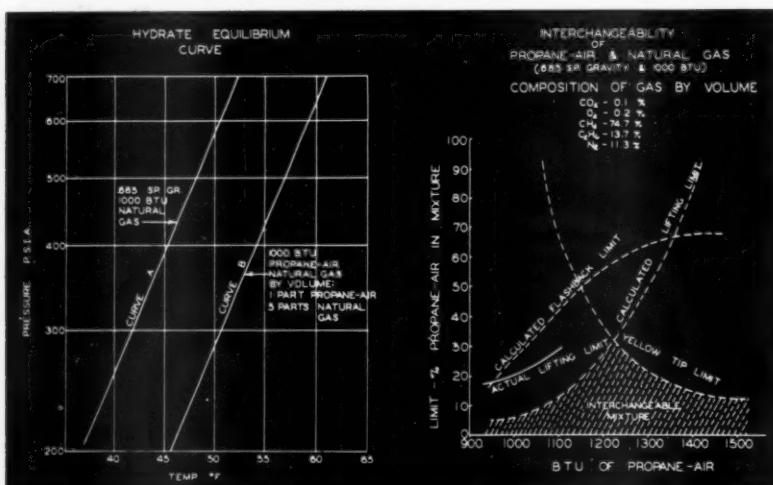


Fig. 2 (left)—hydrate equilibrium curve for straight natural gas and also for normal propane-air-natural gas mixture. Fig. 3 (right)—interchangeability of propane-air-natural gas mixture with straight natural gas calculated as allowable at seven percent of 1,000 BTU propane-air in the mixture

# Plain facts about the gas range



By DEAN A. STRICKLAND

General Sales Manager  
United Gas Corp.  
Houston, Texas

Whenever a group of gas utility men get together, chances are that sooner or later the subject will turn to "electric competition." The obvious question which arises is, of course, "what can we do about it?"

There seems to be complete agreement that the answer lies in selling more gas ranges; more specifically, in having more gas ranges sold by dealers. Therefore, if we consider the matter from that one standpoint—how to get more gas ranges sold by dealers—and don't confine our thinking to electric range competition alone, an entirely different perspective comes into view.

There is ample evidence that our real competition for the sale of gas ranges by dealers is not electric ranges but all the other types of appliances the dealer sells—the refrigerators, the deep freeze units, the automatic washers, the radio combinations, the television sets, as well as electric ranges. In all too many cases the dealer gives his primary emphasis to these other items. In all too many cases the dealer does not really *sell* gas ranges, he merely handles them.

If we can correct that situation and

prevail upon dealers to place their greatest promotion and effort behind gas ranges, then—and not until then—can we have the volume of gas range sales which is needed.

It is doubtful whether dealers in general will do the kind of gas range selling job we need just to help the gas industry fight the battle of the fuels. A more direct, more specific and more personal incentive is needed to gain their aggressive help—an incentive which can be directed to the owner or manager of the business and result in his establishing a policy of pushing gas range sales ahead of other appliances.

There is no incentive which can accomplish as much as the *profit* incentive—*more profit* from gas range sales than from the sale of any other household appliance handled. Show the owner of any business how he can *make more money*, point out tangible facts about his business that will mean more dollars of profit, and if the facts are sound, the suggestions will be welcomed and followed.

In the case of the gas range, the facts are sound. Almost any appliance dealer, if he will but analyze his own operations and study his own invoices, will find that substantially more profit is offered by gas range sales than is offered by any other appliance he handles. Look at some of the facts involved.

The fundamental basis of appliance *net profit* is of course in the *gross margin* which the dealer realizes from the sale of the appliance. The average gas range carries a greater margin of gross profit

than does any other major appliance—from ten to 20 percent more than most of the other prominent types of appliances widely handled. The exact percentages of gross profit on various items varies of course with different dealers. But if any dealer, in the privacy of his own office, will examine his own figures, it is safe to say that he will find that each \$100 of gas range sales volume produces for him anywhere from \$10 to \$20 more gross profit than does \$100 of sales volume from any of his other appliances—that much *more* money with which to pay expenses and have *more* net profit left at the end of the month.

If the dealer prefers to think in terms of "return on investment," an equally powerful comparison can be shown. An investment of \$1,000 in a stock of gas ranges will return a far greater percentage on investment than will the same investment in other types of appliances. This is true because, first, the lower average unit costs of the gas range permits more units of merchandise to be purchased for the \$1,000; and secondly, each such unit returns a higher percentage of gross margin.

Although perhaps the most important, the margin of gross profit is not the only factor which means more net profit at the end of the month. Items such as trade-in allowances, ability to resell merchandise accepted as trade-ins, cost of delivery and installation, cost of carrying out warranties, and servicing costs are also highly important. These and similar factors determine how much difference will result between the original "gross

Presented at annual convention, Southern Gas Association, in Biloxi, Miss., April 20-22, 1949.

profit" and the final "net profit." Analyze each such factor individually as it applies to all the various types of appliances, and it will be found that with most of these factors it costs less to handle and sell the gas range than it does to handle and sell other appliances. With none of them does it cost more to handle the gas range.

What other used appliance accepted for trade-ins can be resold as easily and as advantageously as a used gas range? How do the problems or expenses of gas range installations compare with similar problems of other appliances requiring permanent connections? How much loss must the average dealer sustain by being forced to reduce his regular prices on gas ranges in order to move normal stock-on-hand, or make way for new models which will obsolete his present inventory? What other appliance costs the dealer any less to service, or to carry out the manufacturer's warranty, than the gas range?

Selling and advertising expenses should also be considered. A dealer may consider that regardless of whether he pays his salesmen a straight commission or a salary, his selling costs are the same for all appliances. But is this true? Assuming the salesman receives a straight ten percent commission, does it not cost the dealer more to pay this on an item which carries only a 30 percent gross margin, for example, than to pay it on an item which carries a greater margin? Does it not cost the dealer more (by lower profits) for his sales people to sell lower margin merchandise than for them to sell the same volume of higher margin merchandise?

The same applies to display and advertising costs. The value of the show window, or of the best floor display space, or of the newspaper advertisement, may be the same regardless of the appliance advertised or displayed. But if this

expense is directed towards selling merchandise which returns a lower profit than some other merchandise, then the cost of the display or advertising is higher.

Another factor which contributes to the profit-making possibilities of any appliance is its *saleability*—meaning all the various intangibles which have a bearing on volume sales potential. Here again the gas range outscores all other appliances. The range is the appliance for which there is greatest *need* in the home. As for *customer acceptance*, 90 percent or more of all homes in areas served by Southern Gas Association member companies now use and are familiar with the gas range, which is customer acceptance *plus*.

### Saleability factor

The gas range is not an appliance which requires selective prospects; it can be sold for the smallest of apartments or for the largest of homes, to rich or to poor, to owners or tenants. There is no problem of available space to locate the range—space is provided in every kitchen. Type of home construction offers none of the restrictions which effect many other appliances; foundations, basement, attic, clearance above ground level, walls—none of these factors must be considered in seeking out prospects for the gas range. Of further importance to saleability, the modern automatic gas range is an appliance which has an excellent sales story.

Final consideration of how the profit possibilities offered by the gas range compare with those of other appliances involves the *market potential*—how much business is offered by the market for the appliance in question? In this respect it is doubtful if any other home appliance can even approach the market for gas range sales volume.

Based on the known market as it

actually exists with approximately 300,000 customers, it is estimated that the total customers represented by S.G.A. member companies offer a market of approximately 2,500,000 gas ranges during the three-year period 1949-1951 inclusive. This represents the total of (1) all gas ranges now in use which are estimated to be over ten years old (2) gas ranges now in use which will become ten years old during this period (3) victory model war ranges still in use, and (4) ranges which will be required for new gas customers to be added during this period—a sizeable market itself.

Assuming a conservative unit sales average, this represents a market for a \$144 million volume of gas range sales *per year*, an average of \$12 million per month. This volume is one estimated to compare favorably with the total value of all building materials for all home building in the S.G.A. territory for the year 1948—a market for which the many lumber, cement, sand, roofing, plumbing, builder's hardware, and other types of businesses aggressively compete. Further, this is a market offered by the *most profitable of all household appliances*. The \$144 million per year market for gas range sales offers up to \$27 million per year *more net profit to dealers* than does the same volume from other major household appliances.

Summarizing, it is believed that we of the gas industry have a powerful tool for our dealer promotional work in this story of the greater profits offered by the gas range. It is believed that if we can impress our dealers with the cold, hard facts of *more profit in gas ranges*, they will become more interested in having their sales people trained to sell gas ranges, more interested in using the excellent materials offered by the gas utilities and the gas range manufacturers. Dealers will become more interested in employing sales people, more interested in featuring gas ranges, *more interested in selling more gas ranges*. Obviously the dealer must sell all other types of appliances, but if he recognizes the gas range as the appliance which makes the most money for him, more dealers will begin to *sell* rather than merely to *handle* gas ranges.

It is suggested, therefore, that to the many other advantages claimed for the gas range, we add the advantage of *greater profits for dealers*—and that we emphasize these profit facts to a greater degree than we have done in the past.

## Don't miss the 1949 A.G.A. convention!

MORE than 2,200 individual hotel reservations already have been made for the 1949 American Gas Association convention in Chicago, October 17-20.

As chairman of the General Convention Committee, George F. Mitchell, president The Peoples Gas Light & Coke Co., Chicago, urges all members who plan to attend the convention to act im-

mediately by filling out the special reservation blanks provided for that purpose and mailing them to A. G. A. Convention Room Reservation Bureau, 105 West Madison St., Chicago 2, Illinois. Additional blanks can be obtained from American Gas Association headquarters in New York.

# Material on hand when needed

By PAT H. BUTLER, JR.

Washington Gas Light Co.  
Washington, D. C.

Not a single gas customer has been lost by Washington Gas Light Company because of insufficient material. Material was on hand when needed! This company has looked ahead and developed a scientific plan for estimating material requirements for installation of new mains and services and for maintenance of existing mains and services.

Even though few items of material continue in short supply, the company has not returned pre-war stock inventory conditions. Requirements for materials continue well above pre-war needs because of the continued unusual growth of the area.

At the end of the war it became apparent that some method had to be devised to forecast materials required far in advance of the need—far enough in advance so that they could be ordered and delivered when needed to supply gas service to the many new houses being built.

The sales department's annual forecast of probable dwelling units to be connected to the gas lines has been of great value in determining these material requirements. Furthermore, it is most useful to be continually informed as to the number of dwelling units and services which will be supplied with gas in the near future.

As a matter of information, at the beginning of 1949 there were 10,317 dwelling units on projects to be served

by this company. New mains and 3,465 services will be installed for 7,348 of these dwelling units, while 1,155 services from existing mains will be required for the remaining 2,969 units.

At the beginning of each year, a review is made of the unfinished work or work which has not been started, to determine the number of dwelling units and services on hand. As the months pass, additional dwelling units are approved for installation of the mains and services required to supply them with gas. Each month, the latest month's approvals are added to the dwelling units and services already approved. By dividing the accumulated dwelling units by the accumulated services, the "dwelling units per service" is determined for the month. A trend is then developed from these monthly values.

Figure 1 shows the trend of "dwelling units per service" for 1947, 1948 and January and February 1949. Note the gradual increase from 1.36 at the beginning of 1947 to 2.29 at the end of February 1949. This upward swing is caused by the large number of apartments under construction.

By dividing the sales department's forecast of prospective dwelling units by the trended "dwelling units per service," the number of services to be installed can be reasonably predicted and requirements of such material as pipe, fittings, valves, etc., for construction, maintenance and replacement of mains and services can be estimated.

During the past few years the quantities of pipe and many other materials "per service installed" have shown little variation. Therefore, with knowledge

of the number of services to be installed, these items can be reasonably estimated. Other materials vary with the footage of pipe installed, and these can be related to the estimated pipe requirements.

As pipe is the most important item to have on hand, and as it continues to be one of the most difficult to obtain, this item will be discussed first.

Estimation of pipe requirement is in two parts. Pipe sizes of six inches and smaller are considered "new business sizes" as the quantities in this range vary with the number of services installed. Sizes of eight inches and larger, on the other hand, are estimated in a different manner since they are principally feeder and pressure mains and the footages required are in no way related to the number of services.

Various steps involved in estimating pipe requirements are shown in Figure 2. Each month the engineering department submits a list of current requirements showing the footage of all mains and the number of services by size and kind. This includes the pipe requirements of all approved work released by the engineering department for construction, work approved but not released, and unapproved work that has reached the engineering stage so that main and service information is known. The list includes all street work such as new business mains and services, pressure mains, work ahead of paving, replacements and maintenance, and constitutes as complete a picture of current pipe requirements as can be obtained.

From the average lengths of services by size for the past three years, the current requirements of services are now con-

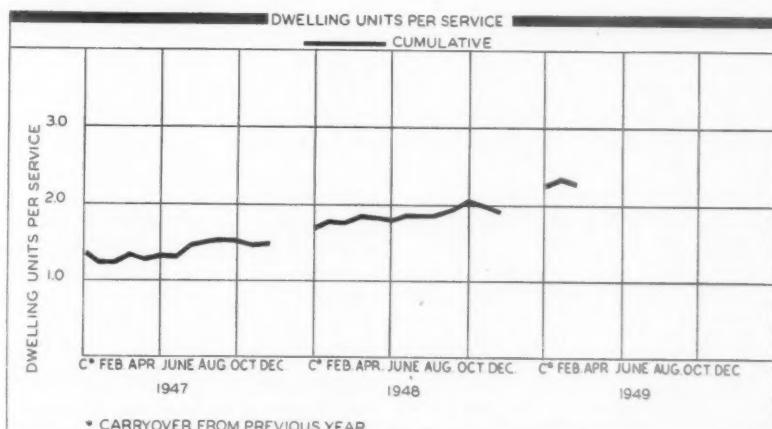


Figure 1. Trend of "dwelling units per service" for 1947, 1948, and January and February 1949

FIGURE 2—ESTIMATE OF MAIN AND SERVICE REQUIREMENTS FOR THE YEAR 1949

Washington Gas Light Company and subsidiaries

Size	Current* Requirements as of 1/1/49	New Business† Sizes Percentages	Large Sizes‡ Additional Prospective Requirements	Total Estimated Requirements
<b>Steel Pipe—Threaded, Galv. and Plain End</b>				
3/4"	218,300'	40.6%		423,000'
1"	12,600	2.3		24,000
1 1/4"	9,400	1.8		18,800
1 1/2"	19,600	3.6		37,500
2"	94,800	17.6		183,300
3"	15,400	2.9		30,200
4"	29,300	5.4		56,300
6"	11,300	2.1		21,900
8"	5,400		11,300'	16,700
12"	—		1,000	1,000
16"	—		—	—
20"	—		800	800
24"	—		700	700
Total	416,100'	76.3%	13,800'	814,200'
<b>Steel Pipe—Wrapped</b>				
3/4"	59,500'	11.1%		115,500'
1"	100	—		200
1 1/4"	100	—		200
1 1/2"	7,500	1.4		14,600
2"	31,100	5.7		59,300
3"	6,900	1.3		13,500
4"	9,300	1.7		17,700
6"	1,400	.3		3,100
8"	2,500		47,600'	50,100
12"	500		27,800	28,300
16"	—		12,200	12,200
Total	118,900'	21.5%	87,600'	314,700'
<b>Total—Steel Pipe</b>				
	535,000'	97.8%	101,400'	1,128,900'
<b>Cast Iron—Mechanical Joint</b>				
4"	2,400'	.5%		5,200'
6"	9,100	1.7		17,700
8"	1,500		500'	2,000
12"	4,500		5,400	9,900
16"	—		—	—
Total	17,500'	2.2%	5,900'	34,800'
<b>Total—All Pipe</b>				
	552,500'		107,300'	1,163,700'
<b>Total—All New Business Sizes (6" and Smaller)</b>				
	538,100'	100.0%		1,042,000'

\*Based on all projected work which has reached the engineering stage.

†Percentages of six-inches and smaller in first column.

‡Based on review of prospective large main projects not yet completely engineered.

1949 estimate of services—7,000

Footage of pipe—

new business sizes (six-inches and smaller)—Based on stock issued per service installed in 1948—148.85 ft.

per service.

1949 total requirements (7000 x 148.85 feet)—1,042,000 feet.

Large-sized pipe (eight-inches and larger)—Current requirements plus additional proposed requirements.

verted to footages and a complete tabulation set up for all current pipe requirements by size, kind and footage.

First step in estimating the six-inch and smaller pipe requirements for the period to be forecast (1949) is to determine the percentage of each size and kind. These percentages are relatively constant. Only with a change in fundamental practice is there much variance.

Figure 3 shows the actual footage is-

sued for all purposes per service installed and percentages (by sizes) of the "new business sizes" for 1945, 1946, 1947 and 1948. The last two columns give the footages and percentages as currently required.

It obviously is impossible to foresee every foot of pipe required. The issued total footage of all pipe "six inches and smaller" per service installed is greater than the currently reported total main

and service footage of these sizes per service. Therefore, the total average issues per service for the previous year is used as the basis of estimating total requirements of these sizes.

To obtain the total 1949 estimated requirement of these combined sizes, the issued total footage of all pipe "six inches and smaller" per service installed in 1948 is multiplied by the number of estimated services for 1949. This total is then broken down by applying the current requirement percentages for each size and kind to obtain the 1949 estimated requirements of pipe of the "new business sizes."

Periodically, the engineering department conducts a review to determine prospective mains projects of pipe, eight inches and larger. This review is prepared from sales department information on locations of proposed subdivisions and all other pertinent data available to the engineering department. Loads are developed and sizes and quantities of pipe required are determined. A list of these projects is made and the proposed work time of each project is shown, as well as the quantities of various sizes and kinds of pipe required.

As the listed prospective mains projects of large-sized pipe become active, their footages are subtracted from the list and become a part of the engineering department's report of current requirements. To these current requirements are added the 1949 prospective projects which have not become active, in order to obtain the 1949 estimated requirements of large-sized pipe.

The "new business sizes" and "large sizes" of pipe are added together to obtain the 1949 total estimated requirements.

It is desirable to estimate a normal stock above the requirements as tremendous usage of some one size can occur in a short period of time. When this happens, the normal stock serves as a cushion until orders are received to bring inventories back into balance.

Whenever the stock of pipe on hand and on order is less than the requirements plus normal stock, more pipe of that size and kind must be ordered to maintain a balance. When tonnage allotted by the pipe mills, orders should be placed for the sizes with deficits.

Usually there is a definite relation between the footage of pipe and the quantities of other materials needed to install

FIGURE 3—FOOTAGE PER SERVICE INSTALLED OF "NEW BUSINESS SIZES"

Washington Gas Light Company and subsidiaries

Size	1945 (2575 Services)		1946 (5466 Services)		1947 (9447 Services)		1948 (10477 Services)		Current Requirements (4407 Services)	
	Feet	%	Feet	%	Feet	%	Feet	%	Feet	%
<b>Steel</b>										
Services $\frac{3}{4}$ "- $1\frac{1}{2}$ "	64.7'	46.1%	62.1'	43.0%	66.3'	45.3%	70.49'	47.3%	62.9'	51.7%
$\frac{3}{4}$ "	7.3	5.2	6.5	4.5	4.9	3.3	5.77	3.9	2.9	2.3
1"	7.9	5.6	5.1	3.5	4.6	3.1	2.22	1.4	2.2	1.8
$1\frac{1}{4}$ "	13.9	9.9	18.8	12.6	12.2	8.4	12.01	8.1	6.2	5.0
Total	93.8'	66.8%	91.9'	63.6%	88.0'	60.1%	90.49'	60.7%	74.2'	60.8%
<b>Mains 2"-6"</b>										
2"	25.0'	17.8%	24.1'	16.7%	25.4'	17.4%	27.51'	18.5%	28.5'	23.3%
3"	7.5	5.4	11.1	7.7	11.1	7.6	10.68	7.2	5.1	4.2
4"	6.7	4.8	8.2	5.7	10.1	6.9	9.54	6.4	8.8	7.1
6"	2.8	2.0	4.1	2.8	8.2	5.6	7.65	5.2	2.9	2.5
Total	42.0'	30.0%	47.5'	32.9%	54.8'	37.5%	55.38'	37.3%	45.3'	37.0%
<b>Total Steel</b>	<b>135.8'</b>	<b>96.8%</b>	<b>139.4'</b>	<b>96.5%</b>	<b>142.8'</b>	<b>97.6%</b>	<b>145.87'</b>	<b>98.0%</b>	<b>119.5'</b>	<b>97.8%</b>
<b>Cast Iron</b>										
<b>Main 2"-6"</b>										
4"	1.9'	1.3%	2.6'	1.8%	1.9'	1.3%	1.00'	0.7%	.5'	.5%
6"	2.6	1.9	2.4	1.7	1.6	1.1	1.98	1.3	2.1	1.7
Total	4.5'	3.2%	5.0'	3.5%	3.5'	2.4%	2.98'	2.0%	2.6'	2.2%
<b>Total Steel &amp; Cast Iron</b>	<b>140.3'</b>	<b>100.0%</b>	<b>144.4'</b>	<b>100.0%</b>	<b>146.3'</b>	<b>100.0%</b>	<b>148.85'</b>	<b>100.0%</b>	<b>122.1'</b>	<b>100.0%</b>

main jobs. After practices have been established, this remains about the same. Such items as couplings, valves and fittings, can be estimated from past experience. Determine the footage of each size of pipe installed per coupling, per valve, etc., and divide this factor into the estimated requirements of pipe of the corresponding size.

For example, divide the footage of four-inch steel pipe by the number of four-inch couplings issued during the

same period to obtain the factor for "the number of feet of four-inch pipe per coupling." Then, by dividing the factor into the estimated requirement of four-inch steel pipe, the estimated requirement of four-inch couplings is obtained.

As shown above, nearly all services installed are  $\frac{3}{4}$ -inch and  $1\frac{1}{2}$ -inch. The percentages of each of these two sizes are also fairly constant. With standard practices changing only infrequently, the

relation of materials issued to the total services installed should be nearly constant. Therefore, it is fairly simple to estimate requirements for any period.

In 1948 there were 10,454 services installed. It is expected that 7,000 services, or 67 percent of the 1948 figure, will be installed in 1949. Multiply the quantities of all items issued for service installations in 1948 (except pipe) by 0.67 to find the estimated requirements

(Continued on page 28)



Managing Committee, A. G. A. Accounting Section, meeting in New York last month: (Left to right around table) L. R. Michelsen, Chicago, Ill.; R. F. McGlone and D. A. Maloney, Cleveland, Ohio; A. G. Burnett, Albany, N.Y.; F. J. Porter, Jr., New York, N.Y.; Marguerite Van Arsdale and T. J.

Shanley, A. G. A.; L. E. Reynolds, Hartford, Conn., Section chairman; J. W. Roper, Washington, D. C., Section vice-chairman; H. F. Quad, Newark, N.J.; L. V. Watkins, New York; A. T. Gardner, Wilmington, Del.; C. E. Shields, Detroit; B. S. Rodey, Jr., New York, and P. E. Ewers, Detroit

*Sessions prove valuable in teaching  
students the fundamentals of gas combustion*

# Industrial gas school popular

More than 100 students from 24 states and Canada found the Association's Industrial Gas School in Indianapolis, Ind., the week of May 9 an unexcelled opportunity to learn the fundamentals of gas combustion and to become acquainted with the many varied applications of gas in industry. Enrollees who attended the 24 lectures included representatives of gas companies, manufacturers of industrial gas equipment, natural gas pipeline companies, service organizations, and affiliated companies outside the industry.

A show of hands revealed that fully 75 percent of the students had entered the gas industry since the war. This is a far greater proportion than at any previous schools, indicating that gas companies are showing increasing interest in having their new men become well-versed in the fundamentals of industrial gas.

Another note of interest was the fact that two of the lecturers had earlier attended industrial gas schools. Rodney G. Hayler, Central Indiana Gas Co., Mun-

cie, was at the first school in New York City 25 years ago, and J. E. Coleman, Pittsburgh Group Companies, attended the second school in Chicago.

This year's industrial gas course was presented by men well-versed in their respective fields, many of whom are spokesmen for specialized phases of gas utilization. One outstanding example of specialized knowledge was demonstrated by E. V. K. Schutt, Central Hudson Gas and Electric Corp., Newburgh, N. Y., who lectured on textiles and drying processes using gas heat to facilitate production.

He stressed the point that many of the new synthetic fabrics require higher drying temperatures than are available through the use of steam and at pressures common to most textile finishing mills. Mr. Schutt illustrated his lecture with samples of fabrics, natural and synthetic, both in the piece and in made up garments. At the end of the lecture the samples were distributed by lot so that students could receive a practical reminder of gas possibilities in the textile

industry.

Two lecturers from outside the gas industry presented highly specialized technical subjects in detail. One was Dr. W. L. Sibbitt, associate professor, heat transfer laboratory, Purdue University, Lafayette, Ind., who included equations to calculate heat transfer through furnace walls made of a variety of insulating materials. Dr. Sibbitt stressed the point that heat transfer runs the gamut of physics and includes heat, optics, electricity, mechanics, and acoustics. He also pointed out that the equations shown were analogous to Ohm's Law and that in many instances the values of insulating materials can be substituted for resistance. This paper is expected to serve as a valuable reference work for the industrial gas engineer.

S. L. Case, Battelle Memorial Institute, Columbus, Ohio, speaking on high speed gas heating, went into detail on the radiation values of ceramic gas burners. During a comparison with induction heating, he explained that high speed gas heating can heat certain shapes of



Lecturer Rodney S. Hayler (second from left), Muncie, Ind., explaining a point to students. Mr. Hayler was a student at the first industrial gas school 25 years ago



B. T. Franck (standing), opening the school, with J. C. Dorsey (center), Cleveland, and H. F. Rehfeldt, Chicago



A. G. A. Industrial Gas School in session in Indianapolis. A total of 104 students enrolled from 24 states and the Dominion of Canada

materials in continuous processing just as rapidly and with equal metallurgical results. Mr. Case described many applications of high speed gas heating and pointed out that specialized equipment is needed to handle material and that it is mainly adapted to quantity type production.

Men from member companies made up the greater part of the faculty. Included were: J. E. Coleman, Pittsburgh Group Companies, Pittsburgh; P. W. Craig, Equitable Gas Co., Pittsburgh; C. C. Eeles, The Ohio Fuel Gas Co., Toledo; H. H. Gieselmann, The Laclede Gas Light Co., St. Louis; Rodney G. Hayler, Central Indiana Gas Co., Munroe; Stanton F. Olinger, The Cincinnati Gas & Electric Co., Cincinnati; F. T. Rainey, The Ohio Fuel Gas Co., Columbus; H. F. Rehfeldt, The Peoples Gas Light and Coke Co., Chicago; A. M. Thurston, The East Ohio Gas Co., Cleveland; O. O. Todd, The Columbia Gas System, Inc., Pittsburgh.

An interesting lecture was given by J. I. Cormany, The Gas Service Co.,

Kansas City, Mo., on practices and trends in converting boilers to gas firing. He pointed out that to determine a trend it was necessary to go back to the early days when a gas burner was aimed at a boiler from four or five feet away, a most inefficient method compared with present-day gas-firing principles. Mr. Cormany discussed relative boiler efficiencies on both straight gas-firing and combination burners together with ways and means of using standby fuels. Carl H. Lekberg, Northern Indiana Public Service Co., Hammond was both a chairman for the day and an instructor. He covered his subject, specialized industrial processes, in a thorough manner and highlighted his talk with personal experience.

D. A. Campbell, Bryant industrial division, AGE, Inc., Cleveland covered the important subject of protective equipment and its uses, pointing out the difference between safety and protection. O. E. Cullen, Surface Combustion Corp., Toledo, spoke on prepared atmospheres

and W. A. Darrah, Continental Industrial Engineers, Inc., Chicago spoke on the fields of use for prepared atmospheres.

Other instructors from manufacturing companies were: M. J. Dewey, Dewey Gas Furnace Co., Detroit; Raymond R. West, Brown Instruments Division, Minneapolis-Honeywell Regulator Co., Philadelphia; and A. D. Wilcox, Eclipse Fuel Engineering Co., Rockford, Illinois.

One of the instructors was also a student. Edgar L. Harris, Public Service Electric & Gas Co., West New York, N. J., thought the course so comprehensive and valuable to his work that he enrolled as a student and also participated as a lecturer on specialized large volume food processing.

Bound copies of the complete set of lectures will be available shortly from Industrial and Commercial Gas Section, American Gas Association, New York. Cost of the papers will be announced in the next issue of the MONTHLY.



E. V. K. Schutt, Newburgh, N. Y., illustrating the wide-awake salesman who sells gas to the textile industry



Students at A. G. A. Industrial Gas School in Indianapolis last month are shown really getting down to business on their examination at the end of the school course

## Natural gas meeting

(Continued from page 6)

Light and Heat Co., Pittsburgh.

"For some companies, propane-air alone may be the solution to the peak load problem," he remarked. "For other companies so situated as to have available depleted gas fields that can be used for underground storage, the propane-air plant offers the advantage of quick start-up and shut-down to supply that extra gas during the extreme demand periods or late in the season when deliverability from underground storage is at its lowest."

"For still other companies located in areas where there is no possibility of underground storage, the propane-air plant may be used in combination with one of the several types of manufactured gas systems, devised to produce winter base load gas."

The general session ended with a showing of The East Ohio Gas Company's dramatic new sound-color film, "Our Silent Partner," together with introductory remarks by W. G. Rogers, vice-president of that company.

Three main events headed the agenda for the Monday afternoon meeting of the A. G. A. Accounting Committee. F. W. Peters, Oklahoma Natural Gas Co., and committee chairman, presided, and also presented a comprehensive report on activities of the A. G. A. Subcommittee on Accounting for Underground Storage of Natural Gas.

H. B. Buoen, special accountant in charge of personnel, Oklahoma Natural Gas Co., led a discussion of natural gas accounting costs in which a number of different methods were brought out for reducing these costs through use of modern equipment and the elimination of duplicate forms.

Final event of the accounting round-table was an interesting open discussion of natural gas accounting problems.

F. A. Hough, chairman, A. G. A. Transmission Committee, presided Monday afternoon at the first of two transmission meetings. As a joint presentation of the transmission and accounting groups, H. O. Buoen showed in an illustrated talk how visual aids can be used to help the employee understand his company.

Commercial applications of centrifugal compressors and the complimentary axial were discussed by the next speaker, T. R. Foster, manager, turbo machinery sales, Clark Brothers Co., Inc., Olean, N. Y. His comments were confined to the newer relatively high pressure centrifugal compressor yield using commercial applications, either in operation or in process of manufacture, as illustrations.

An up-to-date resume of work on revision of A.S.A.-A.S.M.E. Code for pressure piping was presented by H. D. Hancock, president, Gas Advisers, Inc. Principle interests of the gas industry in such a code, Mr. Hancock declared, are, first, to establish minimum construction and operating requirements, observance of which will aid in the continuation of the excellent safety record of the gas industry. Second interest is to enable and energize the self-regulation of the industry in respect of such minimum requirements and thereby obviate the need for regulation in this field by public authorities, and third, to make available a piping code prepared by nationally recognized organizations and individuals and approved by American Standards Association in form suitable for such adoption or enactment as may be desired by public authorities.

W. C. Mosteller, assistant to vice-president, Southern Counties Gas Co. of California, reviewed results of flow efficiency data collected from the California Section of the 30-inch Texas-Pacific pipeline. Flow computations were based on the Nikuradse smooth pipe formula incorporating an efficiency factor to take

into account the reduced capacity of a commercial line over a theoretical smooth pipe. It was assumed that the California section of the line would carry 85 percent of the flow of a smooth pipe.

Modern pipeline construction and methods, including specifications and forms for bidding was the subject outlined in detail by F. E. Richardson, consulting engineer, Texas Eastern Transmission Corp., Shreveport, Louisiana. This presentation was one of three major events on the second and final transmission meeting.

A. P. Maradudin, materials engineer, Standard Oil Co. of California, then discussed quality control of fabrication and installation of high yield strength pipelines. He paid particular attention in his talk to standards of welding which are applied to the results of visual, gamma ray, and physical tests to determine the acceptability of the weld.

R. G. Strong, chief engineer, Natural Gas Pipeline Co. of America, Chicago, and chairman, A. G. A. Pipeline Subcommittee, acted as moderator for a panel discussion of problems connected with the construction of high yield strength pipelines. Participating on the panel were Mr. Maradudin; H. C. Price, president, H. C. Price Co., Bartlesville, Okla.; R. T. Pursell, welding engineer, Stone and Webster Engineering Corp., Boston, and W. A. Saylor, chief metallurgist, Consolidated Western Steel Corp., Los Angeles.

Final event on the transmission program was a showing of the sound-color film, "Biggest Inch," produced by H. C. Price Company.

Current and future activities were discussed at special breakfast and luncheon meetings of the following committees and subcommittees: Technical and Research, Transmission, Pipeline, Gas Well Deliveries, Pipeline Flow, and Nitrogen Removal.

## Material on hand

(Continued from page 25)

for service materials.

As in the case of pipe, it is desirable to estimate a normal stock. Then determine the quantities of the different items for which orders must be placed over and above the amount on hand and on order to maintain a balance.

One very important part of this forecasting is to review all estimates with the engineering department and with departments responsible for installation of the mains and services. If practices change or are to be changed, the estimates must be revised accordingly.

It takes time to obtain material, some kinds of material take longer than others, but with orders placed well in

advance of needs, the material will be on hand when required.

### Services Installed—Percentages by Sizes

	1947	1948
3/4"	81.9%	83.2%
1 1/2"	16.2	15.8
Other	1.9	1.0
Total	100.0%	100.0%

*Industry and guest speakers promise new approaches to many pressing sales problems*

# N.Y.-N.J. program completed

Valuable ammunition which will help the gas industry to face the new buyers' market head-on has been prepared for presentation at the New York-New Jersey Regional Gas Sales Conference at the Essex and Sussex Hotel in Spring Lake Beach, N. J., June 20 and 21. The council, headed by Walter G. McKie, manager, domestic sales department, Rochester Gas & Electric Corp., has designed a dynamic program to assist members in solving their foremost local sales problems.

Demand for enlarged and well-trained sales forces is expected to increase during the latter half of 1949, and several of the guest speakers will cover different phases of this crying need. S. C. Gorman, director, gas water heater promotion, Gas Appliance Manufacturers Association, will provide up-to-date information on the nationwide "Court of Flame" program to upgrade sales of top quality, adequately sized automatic gas water heaters.

A clever and original approach to promoting this important modern gas appliance will be presented by Florence Wren and Jane O'Brien, home economics advisers for Public Service Electric & Gas Company. Entitled "Charm on Tap," this dramatic presentation won an American Gas Association Home Service Achievement Award at the Association's 1948 convention.

Another subject of timely interest is the advent of natural gas into large metropolitan areas in the East. Some of the substantial economies which are expected to result from the use of natural gas and the stabilizing effect of a long-term fixed price contract on future gas operations will be discussed by R. F. Brower, system engineer, Consolidated Edison Co. of New York, Inc.

A relatively new gas appliance which is assuming an ever more prominent po-

sition in the sales picture is the automatic gas clothes dryer. Already gas utility companies representing nine and one-half million meters are promoting this natural companion of the automatic gas water heater. Many of the latest sales and promotional techniques to increase gas clothes dryer sales will be outlined by W. N. Brown, Hamilton Manufacturing Co., New York, in a talk entitled "Selling the Sixth Service."

"What are we waiting for?" is a pertinent question which will be answered

Corp., Birmingham, and chairman, A. G. A. Domestic Range Committee; Ray Babb, manager of appliance division, Quackenbush Co., Patterson, and Irene Muntz, home service director, Rochester Gas & Electric Corporation.

"Selling the Kitchen Load Through the New Freedom Gas Kitchen Program," a talk by R. A. Plata, assistant sales manager, New York and Richmond Gas Co., Staten Island, N. Y., will outline ways and means of utilizing this important "spearhead" activity to in-



W. G. McKie



F. K. Doscher



Jack Lacy



R. F. Brower

by one of the nation's leading salesmen. Jack Lacy, president, Lacy Sales Institute, Boston, has trained more than 8,000 salesmen representing some of the largest corporations in America.

Another high calibre and informative session is scheduled for Tuesday morning. Following remarks by George Kelly, Westchester Lighting Co., Mt. Vernon, N. Y., vice-chairman of the sales council, a panel of four experts will expound ways to increase the gas cooking load. "CP versus AC" has been chosen as the title.

As moderator, H. Carl Wolf, A. G. A. managing director, will be assisted by panel members Julius Klein, vice-president, Caloric Stove Corp.; Carl H. Horne, vice-president, Alabama Gas

increase gas range, gas refrigerator and gas water heater sales.

Throughout the country, gas companies are working to perfect dealer cooperation plans. Some of the most important questions on this subject will be examined by H. W. Springborn, managing editor, *Gas Age* magazine, an authority well acquainted with the vital facts of dealer relations.

Sales training will be discussed by Fen K. Doscher, vice-president, Lily-Tulip Cup Corp., in another featured address. Mr. Doscher is currently president, New York Sales Executives Club and New York Sales Managers Club, and is a former member of the faculty of Pace Institute—School of Marketing.

# Production meeting opens new vistas

An expanding technology which is opening new vistas for the gas industry was paraded before 646 engineers, chemists and top-ranking operating men at the annual Production and Chemical Conference sponsored by the Technical Section, American Gas Association, at the Hotel New Yorker, New York, N. Y. May 23-25. It was apparent throughout the conference, one of the most successful ever held, that the gas industry is in a state of transition between old and new operating methods of far-reaching importance. The three-day program was packed with significant papers and discussions of fast-developing basic trends and practical operating data of immediate usefulness.

H. C. Jones, New England Power Service Co., Boston, Mass., chairman, A. G. A. Gas Production Committee, and F. E. Vandaveer, The East Ohio Gas Co., Cleveland, chairman, A. G. A. Chemical Committee, presided at the general sessions and directed the conference. They were assisted by the vice-chairman, J. P. Stephens, The Cincinnati Gas & Electric Co., Gas Production Committee; and Gilbert V. McGurl, Koppers Co., Inc., Chemical Committee.

Opening the conference session on Monday morning Mr. Jones called attention to the broad conference program which reflected the mounting interest in gas production processes and chemical developments. He emphasized that large and small companies alike would find the conference of value as at least one-half of the papers were of direct interest to plants of one million cubic-foot-per-day output or less.

The era of unbridled competition which the country is now entering makes increased economy in gas production a most vital problem, H. Carl Wolf, managing director, A. G. A., told the delegates, adding "the eyes of the industry

are upon you." To meet this challenge, the PAR Plan, with its highly organized research, advertising and promotion program, is injecting new blood, new thinking and new enthusiasm into the industry, Mr. Wolf said. "Great things are unfolding and you men are in a position to write the ticket for the gas industry for the next few years."

A major readjustment in technology of the manufactured gas business is being brought about by the increasing distribution of natural gas, Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., and first vice-president, A. G. A., declared, in a stimulating address. "This segment of our industry must revise its whole set of values to make ready for and adjust to the coming of natural gas," he said. Mr. Cuthrell called for an expanding technology and accelerated research under the PAR plan to insure progress. "Unless we can envision an industry expanded at least two or three times this present one we are failing in our jobs," he said.

Describing the A. G. A. research program which he termed a definite measure of the industry's vigor and future possibilities, Mr. Cuthrell cited catalytic reforming of hydrocarbons and the Hall high B.t.u. process as "examples of process engineering research in which spectacular results have been achieved in a relatively short time." These two developments are complementary, he said, in that they help to increase the flexibility of manufactured gas operations with respect to the production of both low and high B.t.u. gas. "It's really significant," he continued, "that these results were achieved with an indicated decrease in capital costs and increased thermal efficiency at a time when the problem of investment costs is really acute."

With the completion of current gas



J. P. Stephens (left) and H. C. Jones, vice-chairman and chairman, Gas Production Committee



F. E. Vandaveer, chairman, A. G. A. Chemical Committee, and a presiding officer at the conference



A. E. Forstall, Montclair, N. J., a regular visitor at A. G. A. technical conferences for many years



H. H. Cuthrell (left), A. G. A. vice-president and chairman, Manufactured Gas Department, with E. G. Campbell (center) and W. R. Fraser, vice-chairman and chairman, respectively, Technical Section



H. K. Merker (left), Brooklyn, vice-chairman, Carbonization and Coke Subcommittee; E. A. Manlove (center), Chicago, luncheon chairman; I. J. True, Providence, R. I., who assisted at luncheon meeting



High Btu oil gas panel: (Left to right) G. J. McKinnon, Detroit, moderator; R. H. Meserve, St. Paul, Minn.; R. H. Arndt, Baltimore; J. W. Carroll, Chester, Pa.; B. M. Keys, Washington, D. C.

production research projects and the introduction of natural gas to the highly industrialized Northeast, the gas industry in this area "should attain a stability in costs which we have never enjoyed before," Mr. Cuthrell stated. He also urged the industry to aim at having a standard Btu gas distributed by every gas utility in the country.

Speaking on the potential use of catalytic and thermal hydrocarbon cracking, E. S. Pettyjohn, director, Institute of Gas Technology, Chicago, described how the two processes fit into the gas industry and emphasized that, although catalytic work was undertaken primarily to develop peak load processes, this process could be utilized in a base-load plant where the load was partially supplied by natural gas. Mr. Pettyjohn stressed the A. G. A. pilot plant operation at Chester, Pa., giving operating results with various fuel combinations, and expressed unlimited optimism about the future of catalytic processes in the gas industry.

The concluding feature of the first general session on Monday morning was a stimulating inquiry into present-day high Btu oil gas production methods by a panel of four experienced operators. Led by G. J. McKinnon, Michigan Consolidated Gas Co., Detroit, the panel consisted of B. M. Keys, Washington Gas Light Co., Washington, D. C.; R. H. Meserve, Northern States Power Co., St. Paul, Minn.; R. H. Arndt, Consolidated Gas Electric Light & Power Co. of Baltimore, and John W. Carroll, Philadelphia Electric Co., Chester, Pennsylvania.

Operating experience with single generator sets was described by Mr. Keys who pointed out that the Washington company converted these sets to high B.t.u. oil gas at a cost of \$4,000 per set in 1946 when the utility changed to straight natural gas. He cited the advantages of low conversion cost and flexibility of operation but indicated that only small quantities of gas had been made in the standby sets to date.

Twin generator sets such as those installed a year ago in St. Paul provide continuous operation, low investment and labor saving, according to Mr. Meserve. Generally satisfactory operating conditions were reported by a number of companies surveyed.

Results with the Hall regenerative set at Baltimore were described in some detail by Mr. Arndt, who said the four-



Bruce S. Old, Cambridge, Mass., who spoke on use of radioactive tracers in the gas industry

shell machine operated at lower cost because cheaper oils were used and also was capable of stepped-up capacity. A complete report on the tests made soon will be published by A. G. A., he stated.

The entire afternoon was devoted to three luncheon conferences which were characterized by overflow crowds and intensive discussion. These conferences were divided as follows: Carbonization and Coke—E. A. Manlove, The Peoples Gas Light & Coke Co., Chicago, chairman, and I. J. True, Providence Gas Co., alternate chairman; Chemistry in the Gas Industry—Louis Shnidman, Rochester Gas & Electric Corp., chairman, and J. D. Parent, Institute of Gas Technology, vice-chairman; High Btu Gas—W. H. Isaacs, The Peoples Gas Light & Coke Co., chairman, and Hall M. Henry, Negea Service Corp., Cambridge, alternate chairman.

Dr. Kenneth H. Kingdon, Knolls Atomic Power Laboratory, General Electric Co., Schenectady, told the chemical luncheon group that it would be a period of decades before any substantial part of the nation's power requirements are supplied by atomic energy. He reported that his laboratory is about to construct a nuclear power reactor on a 4,000-acre tract near Schenectady.

The automatic recording titrator and its application to continuous measurement of the concentration of organic sulfur in gas streams was described by Robert R. Austin, Consolidated Engineering Corp., Pasadena, California. At the same session, C. R. Kinney, The Pennsylvania State College, spoke on laboratory techniques in the characterization of tars.

Parallel sessions of the Chemical and Gas Production Committees were held Tuesday morning under the chairmanship of Mr. Vandaveer and Mr. Jones. Opening the chemical session, Frank P. Mueller, The Peoples Gas Light & Coke Co., gave results of a survey on the effect of oxygen in gas upon gas distribution systems. While the survey showed limited experience, it was brought out that the deleterious effects of oxygen on the internal walls of gas mains are much more severe when liquid water is present.

A paper of unusual significance in the long-term fuel picture entitled "Public Utility Gas as a By-Product of Synthetic Liquid Fuels Production," by F. L. Symonds, P. W. Laughrey, L. C. Skinner and H. R. Batchelder, U.S. Bureau of Mines, Louisiana, Mo., and E. E. Donath, Quartermaster Corps, Department of the Army, was presented by L. L. Newman, Bureau of Mines. The authors believe that "the impact of a synthetic fuels development on the gas industry will be important and far reaching."

Two of the most promising synthetic fuel processes, Fischer-Tropsch and coal-hydrogenation, were discussed in terms of potential gas and liquid fuel possibilities. Hypothetical cost figures were given.

Use of radioactive tracers in the gas industry and possible new applications were discussed by Bruce S. Old, Arthur D. Little, Inc., Cambridge, who said widespread use of such tracers can solve a multitude of problems. He strongly urged research personnel to familiarize themselves with the tracer method to the point where its applicability may be considered in designing any experiment undertaken.

Possibilities for designing burners for flexible performance without readjustment on base and peak load gases were reported by W. B. Kirk, A. G. A. Testing Laboratories, where a PAR research project has just been completed on this problem. From the Laboratories' study Mr. Kirk concluded that burners can be designed which would be more flexible in operation on base and peak load gases than most contemporary burners. He cautioned, however, that "the burner cannot be considered without due attention to the environment in which it operates."

W. M. Deaton, U.S. Bureau of Mines, Amarillo, brought the chemical session

to a close with a review of the chemistry of natural gas hydrates. He presented equilibrium data showing pressures and temperatures at which hydrates form and other data which have been published in Monograph 8. The monograph, which contains complete results of the joint A. G. A.-Bureau of Mines hydrate study, is available at A. G. A. headquarters (price \$1.00 to A. G. A. members; \$1.50 to non-members).

Since many manufactured gas companies are preparing for the advent of natural gas during the next year or two, the Gas Production Committee session proved especially timely. A variety of problems including natural gas standby and reforming as well as LP-gas usage were covered in detail.

On the subject of "Natural Gas Standby Methods" Lester J. Eck, Minneapolis Gas Co., Minneapolis, Minn., considered five standby methods: propane, oil gas, catalytic cracking, liquefied natural gas, underground storage.

Mr. Eck warned that the introduction of natural gas to a manufactured gas situation is not a solution to all problems—particularly as regards the load factor. Minneapolis has had natural gas since 1934 and their present load ratio is 10 to 1—from 13 million to 130 million per day. They have two million gallons of propane storage and two and a half million gallons of oil storage for standby.

Operating difficulties peculiar to the reforming operation experienced by his company were described by R. B. Paquette, The Peoples Gas Light and Coke Co., Chicago, Ill., in a paper on "Unusual Maintenance When Reforming Natural Gas." Points covered included production of lampblack, viscous tar, pitch, naphthalene, corrosion and the deterioration of carburetor checker-brick.

With the aid of diagrams and photographs, a paper "Coke Oven Repairs" by Elliott Preston, Koppers Co., Inc., Pittsburgh, detailed the rehabilitation of coke ovens by hot repair methods. Mr. Preston said more and more figures show that oven life is a function of coal carbonized rather than the actual life of the ovens. In this country there is complete acceptance of silica as the brick to be used where maximum carbonization results are desired.

In a presentation built around pic-

tures and charts, Ralph F. Gibson, Tide Water Power Co., Wilmington, N. C., considered his subject "The Use of LP-Gas As a Replacement for Manufactured Gas" in detail. The effect of propane-air on burners, mains, meters, services and regulators was treated. Various types of burners and procedures necessary to effectively burn propane air (864 Btu mixture) were illustrated and described.

National Board of Fire Underwriters Pamphlet 59—its advantages and disadvantages, what it covers and what it does not cover—was effectively handled by C. George Segeler, A. G. A. utilization engineer, in a discussion on "Code For Utilities On the Use and Handling of LP-Gas." NBFU Pamphlet 59 deals with the design, installation and construction of containers and pertinent equipment for the storage and handling of liquefied petroleum gases at utility gas plants—a new and highly important publication.

The troublesome economic problem presented by the small manufactured gas plant was the subject of a paper "Problems of Small Plants Pending Advent of Natural Gas" by H. M. Kopp, The Connecticut Light & Power Company, Waterbury. The financial dilemma of the small manufactured gas plant was well illustrated by Mr. Kopp who presented figures for three small operating gas plants with about

2,000 customers each in the C. L. & P. system over the period from 1940 to 1948.

The Tuesday afternoon program featured a series of four luncheon conferences which proved highly successful. They were: Carbonization and Coke—Mr. Manlove and Mr. True continued as chairman and alternate chairman, respectively; Water Gas Operation—R. B. Paquette, The Peoples Gas Light & Coke Co., chairman, and A. G. Hall, The Brooklyn Union Gas Co., alternate chairman; LP-Gas—A. B. Lauderbaugh, The Manufacturers Light & Heat Co., chairman, and C. L. Hulswit, Rockland Gas Co., alternate chairman; Oxygen and Its Application to Gas-Making—L. L. Newman, Bureau of Mines, Washington, D. C., chairman, and Robert R. White, University of Michigan, alternate chairman.

The manufacture of "cheap" tonnage oxygen "is an accomplished fact," C. C. Wright, The Pennsylvania State College, chairman of the Oxygen Subcommittee, told the oxygen luncheon conference in reviewing the current status of this development. "In general," he said, "\$4 or \$5 per ton is not unreasonable for plants of about 250 tons per day. With smaller plants, oxygen costs will increase rather rapidly and with larger plants costs will be somewhat lower." A number of ton-

nage oxygen plants ranging from a ten-ton-per-day pilot unit to a 2,000 ton-per-day commercial installation are now under construction or in operation, Mr. Wright reported.

During a panel discussion on new gasification processes, C. Von Fredersdorff, Institute of Gas Technology, spoke on "The Continuous Gasification of Powdered Coal Suspensions by Air-Oxygen and Air-Oxygen-Steam Mixture." He presented results of the first phase of the PAR-financed development program sponsored by A. G. A. to test the possibilities of suspension gasification for continuous production of gases varying from producer gas to blue water gas.

General sessions on Wednesday morning and afternoon rounded out the program. The lead-off speaker at the opening session was C. C. Russell, Koppers Co., Inc., immediate past chairman, Gas Production Committee, who presented results of a study of the plastic properties of coal as related to coal carbonization. Much of the data, which was prepared jointly with Michael Perch, also of Koppers Co., Inc., was presented with the aid of slides.

Methods of estimating oil gasification yields, obtained as a result of PAR research, were analyzed by H. R. Linden, Institute of Gas Technology, where the project is being pursued. A



(Left to right) C. L. Hulswit, Spring Valley, N. Y.; J. L. Turnan, vice-chairman, Use and Handling of LP-Gases Subcommittee; A. B. Lauderbaugh, Pittsburgh; H. Emerson Thomas, chairman, Use and Handling of LP-Gases



Head table at water gas luncheon: (Left to right) R. S. Emanuel, chairman, A. G. A. Water Gas Subcommittee; R. B. Paquette, Chicago; A. G. Hall, Brooklyn, and C. A. Gallagher, vice-chairman, Water Gas Subcommittee



(Standing, left to right) R. H. Meserve, St. Paul, Minn.; R. H. Arndt, Baltimore; G. G. Howie, Cambridge, Mass.; E. E. Richardson, Cambridge, Mass.; (Seated) B. M. Keys, Washington, D. C.; J. W. Carroll, Chester, Pa.; G. J. McKinnon, W. H. Isaacs, chairman and vice-chairman, Manufacture of Higher Blu Gases Subcommittee; H. M. Henry, Cambridge, Massachusetts



(Standing, left to right) W. D. McElroy, Library, Pa.; duBois Eastman, Montebello, Calif.; Harry Perry, Pittsburgh; C. Von Fredersdorff, Chicago. (Seated) R. C. Johnson, Wilkes-Barre, Pa.; C. C. Wright, chairman, Use of Oxygen in Gas Manufacture; L. L. Newman, Washington, D. C.; R. R. White, vice-chairman, Use of Oxygen subcommittee; H. N. Woebcke, New York



(Left to right) C. M. Sieger, Hamilton, Ontario; W. C. Wardner, chairman, Carbonization and Coke; H. M. Kopp, Waterbury; J. Campbell, Hamilton



(Left to right) F. E. Vandaveer, chairman, Chemical Committee; Louis Shnidman, Rochester; Dr. K. H. Kingdon, speaker; Henry Hakewill, Chicago

correlation of the enriching value with the carbon to hydrogen ratio, Mr. Linden said, appear to offer the simplest and best method for selecting oils for carburetion or oil gas production.

Accomplishments of gas production research under the PAR program were described by F. J. Pfluke, Rochester Gas & Electric Corp., chairman, A. G. A. Technical Advisory Committee of the Gas Production Research Committee. After reviewing each project and its course, Mr. Pfluke said tangible A. G. A. research results to date include: (1) two answers to the peak load production problem—catalytic reforming process and Hall high Btu oil gas process; (2) practical information on interchangeability of gases; (3) a quick and accurate means of evaluating gas oils; (4) a basis for increasing knowledge of the fundamentals of the water gas reaction; (5) building of research equipment, personnel and testing methods; (6) a means of assessing the value of tar which also improves water gas operation; and (7) stimulation of interest and research on

the part of equipment manufacturers.

A plea for better instrumentation and more accurate control of operations was made by Hugh E. Ferguson, The Peoples Gas Light & Coke Company. His report discussed existing conditions and depicted recent developments in gas plant instruments and controls.

In the absence of D. A. Reynolds, the author, J. D. Davis, Bureau of Mines, presented a paper summarizing the effects of blending Pocahontas No. 3 Coal with 12 high volatile "A" coals. A continuation of the long-term joint Bureau of Mines—A. G. A. studies of coal carbonization, this project showed that increases in the high volatile "A" coals as a result of the blending were greatest for coals that yield the weakest coke when carbonized singly.

Switching the spotlight to accident prevention, the initial presentation on Wednesday afternoon, was entitled "What Production Men Are Doing About Safety." Philip G. Facey, Northampton Gas Light Co., and chairman, Gas Production Subcommittee on Safety,

outlined gas plant hazards and steps taken to eliminate them. "Modern gas manufacturing equipment is generally completely equipped with safety devices which function properly, if properly maintained," Mr. Facey stated.

A comprehensive and enlightening report of new methods of operation and equipment offered by gas plant builders was summarized by the Builders' Committee chairman, A. E. Harvey, Stacey Brothers Gas Construction Co., Cincinnati. Among the topics covered were: spherical pressure vessels for gas storage, centrifugal compressors, peak shaving and standby control, methods of increasing water gas set capacity, hydrogen process for peak load production, liquefaction, storage and regasification of natural gas, radiographing and stress-relieving of welded tanks, and the catalytic process as a production tool.

Under the title "Hidden Values in Gas Tars," C. R. Kinney, The Pennsylvania State College, discussed results of a PAR-sponsored program of the A. G. A. Gas Production Research Committee to de- (Continued on page 52)



Between-sessions discussion: (Left to right) C. G. Milbourne, Toledo; F. B. Colbert, Racine, Wisc.; O. A. Gray, Philadelphia; G. H. Head, Racine; G. M. Pemberton, Cincinnati, Ohio, and F. C. Yeazel, Franklin Park, Ill. Informal meetings and get-togethers played important role at the conference



Speakers at chemistry in the gas industry luncheon on Monday: R. R. Austin (left), Pasadena, Calif.; C. R. Kinney, State College, Pennsylvania

# Research works released

**A PAR activity** A number of research bulletins and reports have been issued by American Gas Association Testing Laboratories in recent months, provoking much favorable comment and helping to advance the art of designing gas-burning appliances. All bulletins were produced and published under the PAR Plan and sponsored by the Committee on Domestic Gas Research, R. J. Rutherford, Worcester (Mass.) Gas Light Co., chairman.

Outstanding from the standpoint of industry-wide interest were bulletins on the modulated operation of warm air furnaces and the installation of central heating equipment in confined spaces such as closets and utility rooms. These have been in constant demand. Work in this field is expected to benefit from the results of a highly technical investigation into the fundamentals of heat transfer in progress at the present time. A comprehensive report of work to date is among material recently published.

Bulletins and reports likewise have been published on factors affecting the height of gas range grates, the design, construction and performance of pilot burners, and a study of the prevention of oven burner port closure. Several mixed gas research studies are to be published shortly.

The bulletins and reports released are as follows:

**Bulletin 51**—Effects of Modulated Operation on Performance of Gas Warm Air Furnaces, \$1.75.

**Bulletin 52**—Investigation of Factors Affecting Height of Gas Range Grates, \$1.25.

**Bulletin 53**—Effects of Confined Space Installation on Central Gas Space Heating Equipment Performance, \$1.75.

**Bulletin 54**—Investigation of Causes and Prevention of Closure of Oven Burner Ports, \$1.00.

**Report 1108**—Research in Fundamentals of Heat Transfer on Central Gas Space Heating Furnaces, \$2.00.

**Report 1123A**—Research in Pilot Design, Construction and Performance, \$1.25.

Bulletins and reports may be obtained from A. G. A. Testing Laboratories, 1032 East 62 St., Cleveland 3, Ohio.

## Women's club visits

The Women's Club of the eastern division, Southern Counties Gas Co. of California, Los Angeles, Calif., recently spent an evening inspecting the facilities of the Pacific Coast Branch of the American Gas Association Testing Laboratories.

More than 40 members of the club together with several Southern Counties service men were guests of the Laboratories and were shown how gas appliances and accessories are certified under the approval plan. Arrangements for the visit were made by the members through H. W. Geyer, utilization engineer, Southern Counties Gas Co., who assisted the supervisory staff in conducting the guests through the Laboratories. Mr. Geyer is also chairman, A. G. A. Subcommittee on Approval Requirements for Gas Water Heaters and has been active for many years in requirements work. A. F. Bridge, president, Southern Counties Gas Co., also has long been active in Laboratories affairs, first as a member of the Laboratories Managing Committee and now as its chairman.

Members of the Laboratories staff who were hosts to the visitors were W. H. Vogan, supervisor; Frank Fiedler, Jr., assistant supervisor; Milo A. Duden, chief test engineer, and Pieter Root, Jr., assistant chief test engineer.

## Inspections completed

Annual inspections of approved gas equipment in the field have been completed by American Gas Association Testing Laboratories. Laboratories inspectors have visited nearly 400 manufacturers' plants in addition to a number of dealers, gas companies and city inspectors. Several hundred appliances have been examined on customers' premises.

In the great majority of instances the appliances checked were found to be manufactured as approved, permitting renewal of approval for another year provided the initial approval period had not expired. Where constructional changes were found, they were usually of such a nature that certification of the equipment was not affected. In some cases, however, it was necessary for appliances to be submitted to the Laboratories for retest to determine acceptability of the changes observed.

Market conditions in recent months have greatly increased the number of requests received by the Laboratories for approval changes. Every effort is made to clear such requests as quickly as possible and to include necessary listing changes in the Directory of Approved Gas Appliances and Listed Accessories.

Along with the switch to semi-annual publication of the complete Directory, several other innovations have been incorporated. These include creation of a separate section for high altitude approvals and printing of the "Distributors—Jobbers—Dealers" section in blue ink for ready identification. Supplements are now bound in heavier paper with a different color used for each month.



Members of Southern Counties Gas Company women's club inspecting Pacific Coast Branch of A. G. A. Testing Laboratories. Group is standing in front of closed room used in testing space heaters.

# Industry news

## Work started on Transcontinental line

CONSTRUCTION of the 1,840-mile Transcontinental Gas pipeline which will deliver natural gas from the Gulf Coast area to New York, Newark, Philadelphia and other eastern seaboard cities, got under way May 23 when the first sections of 30-inch pipe were laid near Laurel, Mississippi.

The \$190 million project, which represents the longest natural gas pipeline ever to be

built in this country, is scheduled for completion within two years. As originally designed it will be capable of delivering 340 million cubic feet of natural gas a day to gas-hungry cities of the East. This capacity may be increased to 505 million cubic feet a day by the construction of additional compressor stations.

Ground-breaking ceremonies were attended by Claude A. Williams, president, and other top officials of Transcontinental Gas Pipe Line Corp., executives of Fish Constructors, Inc., builders of the line, Mississippi State officials and a group of bankers, public utility executives and publishers and editors from New York, Newark, Boston, Philadelphia, Washington, D. C. and Houston.

The 1949 building program of Transcontinental calls for 605 miles of main line construction between Eunice, La. and Athens, Georgia. Next year the line will be extended northward to New York City and westward to the Rio Grande Valley in Texas where it will tap some of the world's richest gas fields. Known estimated reserves of natural gas in the Gulf Coast region traversed by the line exceed 50 trillion cubic feet.

Construction of the line will be an engi-

neering project of the first magnitude. In its course of more than 1,800 miles, it will cross 76 rivers, including the Hudson and the Mississippi, numerous railroads and highways, and more than 5,000 separate tracts of land. Twelve major river crossings will be made this year.

Since early February, trainloads of pipe have been moving from California Steel mills to southern states where the pipe is being stock-piled along the route of the line. Approximately 120 carloads are now being shipped weekly from Consolidated Western Steel Corporation's pipe mill at Los Angeles. Altogether some 25,000 carloads—more than 470,000 tons of finished steel pipe, will be required to complete the line.

Public utility companies which have contracted for gas to be delivered by the Transcontinental line include Consolidated Edison Co. of New York, Inc.; Public Service Electric and Gas Co., Newark, N. J.; The Brooklyn Union Gas Co.; Philadelphia Electric Co.; Long Island Lighting System; Elizabeth, N. J.; Kings County Lighting Company and Brooklyn Borough Gas Company.

## International pipeline plans announced

CONSTRUCTION of a 1,400-mile, 30-inch natural gas pipeline from Alberta, Canada, to Vancouver, B. C., and thence to Washington, Oregon and northern California is planned, according to an announcement by Frank McMahon, president, Pacific Petroleum, Ltd., of Canada.

A Canadian corporation, Westcoast Trans-

mission Co., Ltd., will construct and operate the Canadian part of the pipeline, and an American corporation will be formed to construct and operate the American end of the line. The completed pipeline is expected to cost \$175 million. Financing will be handled by Eastman, Dillon & Co., New York.

Extensive geological and exploratory work since the war have confirmed the existence of large quantities of natural gas in the Province of Alberta. Many American and Canadian oil and gas companies own leases and concessions throughout the tributary areas in which the gas-bearing sands lie.

## California show proves "Gas Has Got It"

SOUTHERN COUNTIES GAS CO. OF CALIFORNIA, Los Angeles, Calif., is currently staging an impressive "road show" to demonstrate the over-all superiority of the modern gas range compared to other cooking appliances.

An expertly produced program titled "Gas Has Got It" is being presented alternately in each of the company's eight operating divi-

sions. Showings are being given only to employee, dealer and manufacturer audiences and their families, but serious consideration is being given to presenting this same program to architects, general contractors and possibly to school personnel at a later date.

"Gas Has Got It" features a cooking demonstration in which performances of the most modern gas and electric ranges are compared.

Initial bookings schedule 42 showings in 11 different cities and run from early February through May.

Purpose of the demonstration is to impress audiences that the modern automatic gas range built to CP standards has each and every one of the nine features desired by home managers in a new range—and the majority of these in greater measure than does any other type of cooking appliance.

Average attendance, according to Katherine Rathbone, Southern Counties home service supervisor, has run about 80 people per showing. Approximately 20 percent of these have been dealers and manufacturers and the remainder employees and their families.

One by one, the nine features that housewives desire most in a new range are demonstrated and compared. Broiling of thick porterhouse steaks, for example, impressively demonstrates that a gas range is both cleaner to use and easier to keep clean. Top burner vegetable cooking is the means of demonstrating the gas range's speed advantage, and a singing teakettle is used to spectacularly demonstrate the superior flexibility of gas heat. Other tests include cake baking and the cooking of hamburger patties. Finally, accurate cost comparisons are drawn to show that a gas range is less expensive both to buy and to operate.



Darrell Minton and Doris Streibich, Southern Counties Gas Co., demonstrating, point-by-point, that the modern automatic gas range built to CP standards has those features homemakers want most

# Associated organization meeting aids coordination



Meeting of national, regional and state utilities executives at American Gas Association headquarters in New York last month: (Left to right around the table) Harold Massey, GAMA; L. W. Becker and E. A. Smith, New Jersey Gas Association; A. F. Herwig, Wisconsin Utilities Association; H. E. Peckham, Mid-West Gas Association; E. W. Ruggles, Mid-Southeastern Gas As-

sociation; Clifford Johnstone, Pacific Coast Gas Association; H. Carl Wolf, A. G. A.; R. C. Brehaut, Maryland Utilities Association; Mark Shields, Pennsylvania Natural Gas Men's Association; R. R. Suttle, Southern Gas Association; E. S. Pettyjohn, I.G.T.; C. W. Goris, Indiana Gas Association; H. L. Whitelaw, GAMA; Clark Belden, New England Gas Association

**MANAGING DIRECTORS** and secretaries of ten affiliated regional and state utility associations met with staff executives of American Gas Association, Gas Appliance Manufacturers Association and Institute of Gas Technology, at A.G.A. Headquarters on May 20, 1949, to effect an exchange of programs and plans and to further the present close coordination that exists throughout the gas industry.

Affiliated association executives attending were Clifford Johnstone, managing director, Pacific Coast Gas Association, who presided at the all-day meeting; Lewis W. Becker, Jr., vice-president, New Jersey Gas Association; Clark Belden, executive secretary, The New England Gas Association; Raymond C. Brehaut, secretary, Maryland Utilities Association; Clarence W. Goris, secretary-treasurer, Indiana Gas Association; Harold E. Peckham, secretary-treasurer, Mid-West Gas Association; A. F. Herwig, executive-secretary, Wisconsin Utilities Association; Edward W. Ruggles, secretary-treasurer, Mid-Southeastern Gas Association; Mark Shields, executive-secretary, Pennsylvania Natural Gas Men's Association; Elmer A. Smith, secretary-treasurer, New Jersey Gas Association and Robert

R. Suttle, managing director, Southern Gas Association.

E. S. Pettyjohn represented Institute of Gas Technology GAMA executives present were H. Leigh Whitelaw, managing director; Harold Massey, assistant managing director; and James I. Gorton, "CP" promotional director. A.G.A. officers participating in the conference were H. Carl Wolf, managing director, John W. West, Jr., and George H. Smith, assistant managing directors and Kurwin R. Boyes, secretary.

Mr. Whitelaw opened the meeting with a brief review and forecast of the gas industry's outlook in 1949. While gas appliance sales experienced some seasonal declines in the first quarter, Mr. Whitelaw declared a return to aggressive selling by full sales organizations on the part of gas utility companies, could lift sales of gas and gas appliances well above pre-war levels.

Promotional activities of A.G.A. and affiliated associations were discussed at length. Staff members briefly described various promotional activities, both present and future, scheduled by A.G.A. and GAMA. Affiliated association executives outlined their individual programs and efforts, and ways and means

of coordinating these plans were agreed upon.

Statistical work being done by both national associations was reviewed for the visitors and plans were proposed for further disseminating the valuable compilations of sales and production data throughout the industry and to the public.

Improvement of information channels and elimination of overlapping activities were important subjects discussed at the afternoon session. All present agreed that an exchange of information regarding proposed meetings and other activities as far in advance of these events as possible would help greatly to avoid conflicts in dates and duplication of efforts.

Mr. Pettyjohn outlined many of the projects being carried on at Institute of Gas Technology under the A.G.A. Promotion, Advertising and Research Plan. He described the functions of the Institute and stressed the importance of the research work being done for the benefit of the gas industry by his own organization and at other technical and research institutions under the PAR Plan.

Following the success of this year's meeting it is expected that the conference of regional and state utility associations will become an annual event.

## Darling elected president by LPGA

ATTRACTING upwards of 1,500 representatives from 45 states and several foreign countries, the annual convention and trade show of Liquefied Petroleum Gas Association in Chicago, May 9-11, shattered all previous attendance records.

Si G. Darling, Pratt, Kan., was elected president for the coming year. Other officers include: First vice-president—Edward C. McEaney, Walnut Creek, Calif.; second vice-president—W. S. Lander, Charlotte, N. C.;

treasurer—Walter Miller, Chicago; executive vice-president—Howard D. White, Chicago; vice-president in charge of technical division—Frank Fetherston, New York, and Secretary—Arthur C. Kreutzer, Chicago.

Howard D. Valentine, director of sales promotion, The Peoples Gas Light and Coke Co., Chicago, declared that LP-gas men should place less emphasis on appliances in their sales promotion and stress instead the flexibility, controllability, adaptability and

economy of gas service itself. Frank Nugent, president, Gas Appliance Manufacturers Association, urged a counter-offensive to offset electrical competition.

President K. H. Koach pointed out that approximately ten million homes still cooking and heating water with wood, coal or kerosene are prospects for LP-gas service.

Resolutions favoring a nation-wide advertising and publicity program for the LP-gas industry were adopted.

## Gas air conditioning contest under way

**H**ANDSOME brochures outlining the scope of activities to be judged and setting forth regulations for entries in the annual American Gas Association Award for Gas Summer Air Conditioning have been mailed to all gas utility companies. The award will be presented at the A. G. A. Annual Convention in Chicago, October 17-20, 1949.

Industry-wide recognition goes to the winner of this progress award which consists of a distinctive burnished copper plaque mounted on polished walnut and a cash prize of \$1,000, to be used at the discretion of the management of the winning organization. The prize money may be used for a joint activity to be enjoyed by the entire personnel or may be distributed

to those who were responsible for the award-winning achievement. The contest is sponsored by A. G. A. and the prizes donated by Servel, Inc.

Size and location of participating gas companies will not be a factor in judging the award. All utilities large and small are urged to enter presentations of any achievements in application engineering, sales planning, sales promotion, product development, organization development or other outstanding achievements that will contribute to better understanding and advancement of gas summer air conditioning.

The jury of awards will include representatives from American Society of Heating and Ventilating Engineers, Gas Trade Publishers, American Institute of Archi-

archs, The Building Industry Press, Gas Appliance Manufacturers Association, American Gas Association and the educational field.

The 1947 A. G. A. Progress Award was won by Southern California Gas Company with a portfolio presenting an excellent story of its accomplishment in sales promotion. Presentations may be made in any form desired. Completeness and clarity are most important.

Descriptions of achievements should be mailed to L. L. Ladewig, chairman, A. G. A. Gas Summer Air Conditioning Committee, 420 Lexington Avenue, New York 17, N. Y., so that they will be received before August 1, 1949.

## Water heater slide film completed

**A** NEW SOUND-SLIDE FILM "More for the Money," has been produced for gas water heater manufacturers and is now available for distribution, according to Harold Massey, assistant managing director, Gas Appliance Manufacturers Association.

The film has been produced in the belief that correct and modern installation will ma-

terially reduce the cost of automatic gas water heater service, thereby creating greater customer satisfaction and proving the merit of automatic gas water heater service against all fields of competition.

"More for the Money" illustrates modern installation methods, including proper allocation of the gas water heater itself with re-

lation to fixtures or outlets, short cuts in piping through the use of tubing, minimum runs, manifolds, hot water traps, and proper venting.

Copies of the film are available from Gas Appliance Manufacturers Association, 60 East 42 St., New York, at \$17.50 each.

## Atomic show given at Providence Gas

**W**HAT'S THE STORY behind atomic energy. Thirty-thousand people of the Greater Providence (R. I.) area, including the Governor, representatives of the press and radio stations, and a large group of high school students, visited the display rooms of Providence Gas Company recently that they might see and learn.

For a week, persons interested in modern gas appliances were slightly inconvenienced while the gas company demonstrated its desire to be a good citizen, not only by supplying a modern service but by making its facilities available so that customers might see a modern display of a subject in the forefront

of today's news—atomic energy.

Arrangements for the atomic energy showing were made through the cooperation of various groups. The Providence Journal Co., publishers of the State's largest newspapers, assumed sponsorship of the display. K. P. Kallman, exhibition manager, Brookhaven National Laboratory, Upton, L. I., arranged the equipment and planned the demonstrations. The utility removed its gas appliance exhibit from a large portion of the show room space on the main floor of its office building.

First announcement to gas company personnel was made through the employee maga-

zine, "Gas Has Got It." About two weeks before the opening date, the first newspaper announcement appeared, giving full credit to the gas company for providing the space.

Utility employees were informed that the exhibition had been prepared for United States Atomic Energy Commission and that Brookhaven Laboratory operated under the auspices of Associated Universities, Inc.

The opening story explained that certain of the exhibits would be manned by special demonstrators, while others would be operated by visitors themselves. It informed readers that current applications of nuclear energy in medicine, biology, chemistry, agriculture and other fields would be described in layman's terms.

Among the most popular exhibits were those involving the use of Geiger counters. Of special interest was one which enabled the operator to determine which of a group of live frogs was radioactive.

On the evening of the day the equipment arrived, Providence *Evening Bulletin* ran its story under a headline, "Like Circus Day At Atomic Exhibit Unloads." Students from Providence College assisted in setting up and arranging the 11 pieces of display properties.

After the exhibit had closed, Clifford A. Shaw, promotion manager, Providence Journal Co., wrote to thank the utility for its "wholehearted cooperation."

"The Providence Gas Company," he said, "has indeed proved itself a strong factor in community education and development."



Portion of atomic energy display on the appliance showroom floor at Providence Gas Company

## Hartford features model all-gas home

**A UNIQUE AND HIGHLY SUCCESSFUL** gas promotional project opened in Connecticut May 9 when more than 4,000 people attended a "house warming" for the Webster Hill All-Gas Model Home, sponsored by *The Hartford Times*, in cooperation with The Hartford Gas Company. Featuring an expandable four-room \$11,900 house which can be enlarged into six rooms for \$250 additional, the opening attracted local and national celebrities.

A New Freedom Gas Kitchen, with the latest model gas range and refrigerator, and the gas water heater and house heating equipment were the center of attention. At a preview of the house, Norman B. Bertolette, president of the gas company, said the model home demonstrates "what private enterprise can do for people who don't want to live on the government but on their own." A special model home edition of the *Times* and promotion by cooperating firms brought widespread publicity to the home. It was open to the public daily from 2:00 to 9:00 P.M. through May 22.

Frances Langford, radio and screen star, accompanied by her husband, Jon Hall, cut the blue ribbon across the threshold to start a steady stream of visitors through the Cape Cod green and white clapboard home. Representatives of national building publications, American Gas Association, Gas Appliance Manufacturers Association, and others attended the opening ceremonies. Among those participating were L. P. Fridley, chairman, A. G. A. Committee on Housing, and F. W. Williams, secretary, A. G. A. Residential Gas Section.



(Top, left to right) H. R. Carlson, general sales manager, The Hartford Gas Co.; L. P. Fridley, chairman, A. G. A. Committee on Housing; F. W. Williams, A. G. A. Residential Gas Section; I. R. Stich, builder, at model home luncheon. (Below) New Freedom Gas Kitchen which was center of attention

## Pipeline to feed gas to Oak Ridge

**EAST TENNESSEE NATURAL GAS COMPANY** and Tennessee Gas Transmission Company have been authorized to build new pipeline facilities to supply 60 million cubic feet of natural gas per day to the atomic energy plant at Oak Ridge, Tennessee. Under the proposed arrangement, Tennessee Gas Transmission will sell the required quantity

of gas to East Tennessee Natural Gas Company which will resell and deliver it to the Oak Ridge plant.

The pipeline authorized for construction by East Tennessee will be of 22-inch diameter and will extend about 172 miles from a point of connection with the Tennessee Gas Transmission Company line eastward to

the atomic energy plant at Oak Ridge. Estimated cost of the project is approximately \$9,400,000.

Facilities authorized for construction by Tennessee Gas Transmission Company are part of a larger project involving a proposed increase of the company's total system capacity to one billion cubic feet a day.

## All-year gas air conditioning to be discussed

**A PAR activity** A TECHNICAL paper "Pressure Loss and Air Flow Characteristics of a Box Plenum" will be presented at the summer meeting of American Society of Heating and Ventilating Engineers, June 20-23, at Hotel Nicollet in Minneapolis, Minn. This paper by S. F. Gilman, R. J. Martin, W. R. Hedrick and S. Konzo, department of mechanical engineering, University of Illinois, has been prepared as a result of research work which these men have conducted recently in connection with American Gas Association domestic research project DGR-2-AC "Improvement of Air Distribution Systems for All-Year Gas Air Conditioning." The proj-

ect is a PAR Plan activity of the Association.

This research project is concerned with the problem of getting uniform air distribution in dwellings that are air conditioned with gas the year round, regardless of outside temperatures, humidity or wind conditions. Problems brought on by dual use of duct systems do not exist in ordinary warm air heating duct systems or in duct systems designed entirely for distribution of cool air in summer time. The Committee on Domestic Gas Research and its Technical Advisory Group for Gas Summer Air Conditioning Research believe that gas all-year air conditioning will not reach its full possibilities until the technical problems of

all-year air distribution are solved and until the designs to incorporate features that will allow for rock bottom cost of the duct work and its installation are achieved.

The box plenum method of all-year air distribution is the only method so far reported on in reference to this research project and it is believed that the data developed at the University of Illinois, which will be reported in the paper mentioned above, is the first data of this kind that has been available to utilization engineers in the gas field as well as to heating, ventilating and air conditioning engineers. Research work on this project at University of Illinois is now being concentrated on the next step, namely, extended plenums.

## Gas industry's radio claims recognized

ANNOUNCEMENT on May 6 of a long-awaited report by the Federal Communications Commission signified that the gas industry has won an important round in the battle to obtain unimpaired use of mobile radio frequencies for emergency and other vital uses.

The FCC report, in fact, recognized the gas utilities' claims for unimpaired mobile radio facilities. Frequency allocations for gas companies will be made under the two general classifications of power and petroleum radio service. Public utilities were classified in category 2 just below police and fire radio services, the same priority rating which was requested by the National Committee for Utilities Radio at its October 1948 hearing.

Long-haul natural gas systems having no major distribution properties will be assigned radio frequencies in the petroleum service category. On the other hand, gas companies

having primarily distribution properties will be provided frequencies in the power service category.

Efforts in the struggle to separate the gas industry's mobile radio facilities from those of "other industries" (trucking companies, dairy companies, manufacturing concerns, etc.) "in the interest of public safety," have been directed by E. M. Borger, president, The Peoples Natural Gas Co., Pittsburgh, as chairman of the Association's Mobile Radio Committee. Invaluable assistance has been rendered by Warren T. Bulla, Natural Gas Pipeline Co. of America, Chicago, as vice-chairman of the A. G. A. committee. Mr. Bulla and three other gas industry authorities represent the gas utilities on the National Committee for Public Utilities Radio, an engineering committee established to work jointly with the FCC staff. The Independent Natural Gas Association is also represented on the NCUR.

Particular recognition of the NCUR's efforts was given by FCC in the following statement:

"The National Committee for Public Utilities Radio presented a comprehensive national frequency assignment plan with respect to the use by the utility industry of all the frequencies that have been allocated to it. The Commission believes that a possible solution to frequency assignment problems lies in the development of such plans and that something similar might be worked out to the advantage of many of the service groups that use radio service in their operations."

Special meetings of the power and petroleum groups have been called for June 1949, with the intention of allocating specific radio frequencies. Later in the month, the A. G. A. Mobile Radio Committee will meet to plan on cooperation and coordination with the petroleum and power groups.

## New group buys American Gas Journal

THE *American Gas Journal*, senior publication of the gas industry and one of the nation's oldest business papers, has been purchased by a group headed by E. Holley Poe, natural gas consultant, New York. Allied with Mr. Poe in the purchase of all the capital stock of the corporation are Elliott Taylor,

formerly editorial director of Jenkins Publications, Los Angeles, and Lewis V. Hohl, New York publishers' representative.

The firm of E. Holley Poe and Associates will render consulting and research services to the publication. Mr. Taylor will be editor, with Mr. Hohl as business manager.

*American Gas Journal* was founded in July, 1859 as *The American Gas Light Journal*, and has been published continuously since that date. The previous owner was the late Stanton G. Krake, editor and publisher. Offices will be continued at 53 Park Place, New York 7, N. Y.

## Important advances made in gas refrigeration

PROGRESS in gas refrigeration in the form of a superior product at lower cost over a period of two decades is indicated in the accompanying data. In the chart at the left, prices and specifications of a 1929 gas refrigerator are compared with those of a 1949 gas refrigerator of modern design and greater size. The other chart shows that the factory price of gas refrigerators has advanced in recent years even less than other important items in the average family's budget.

Fantastically increased taxes and skyrocketing labor costs, coupled with reduced hours of work and better working conditions, make this record even more significant. Hourly wages of Servel workers, for example, were three times as great in 1948 as in 1929. During the same period the company's total tax bill, exclusive of excise taxes, jumped from \$105,823 to \$5,081,112. A prewar comparison shows average hourly wages in 1948 up 81.4 percent above 1941, while the total tax bill in this period, exclusive of excise taxes, advanced from \$1,940,846 to \$5,081,112.

The gas refrigerator has many other desirable features not found in the 1929 model and not reflected in the chart above. Some of these are: one-piece seamless steel cabinet, ice cube release, adjustable shelf, interior light, fiberglass insulation and non-

corrosive shelves.

A drastic reduction in factory prices of Servel gas refrigerators was announced recently by Louis Rutherford, president. The reduction covers the entire line of current model refrigerators manufactured by the

company except for the smallest model.

"It is our belief," Mr. Rutherford said, "that these price adjustments will substantially activate sales and break down consumer reluctance to purchase now in the hope of lower prices."

### 20 YEARS OF PROGRESS GIVES MORE GAS REFRIGERATOR FROM EVERY ANGLE

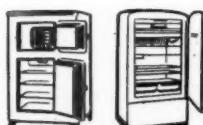
AND AT

**\$19.15**

LESS IN NET

FACTORY

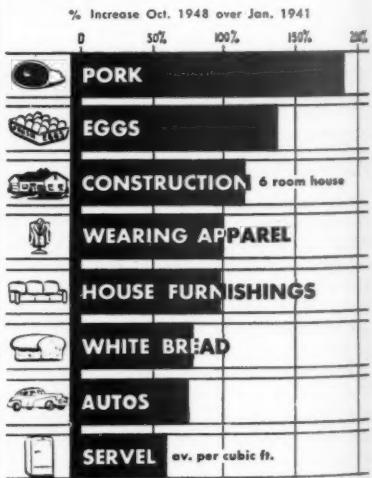
SELLING PRICE



	1929 7 cu. ft. Refrigerator (EL-7)	1949 8 cu. ft. Refrigerator (W-800A)
Food Storage Capacity	7 cu. ft.	8.1 cu. ft.
Net Weight (Without Crates)	515 lbs.	470 lbs.
Shelf Area	10 sq. ft.	18.11 sq. ft.
Ice Cubes	50 cubes	102 cubes
Number	5 lbs.	10.1 cubes
Weight	5	6
Ice Trays		
Over-all Dimensions		
Height	65 1/2 in.	63 3/4 in.
Width	33 in.	33 3/4 in.
Depth	26 1/8 in.	29 3/4 in.
Vegetable Fresheners	0	2
Frozen Food Storage	0	1.1 cu. ft.

\* Source of Data: Pork, Eggs, Wearing Apparel, House Furnishings, White Bread—U.S. Bureau of Labor Statistics, Cost of 6-Room House—Real Estate Trends, Roy Wenzelich and Co., St. Louis. Servel prices—average net factory price.

### INCREASE IN PRICE OF GAS REFRIGERATORS COMPARED WITH INCREASES FOR CERTAIN IMPORTANT COST-OF-LIVING ITEMS\*



## Opportunity unlimited

(Continued from page 12)

the home. It must be told convincingly, persuasively and dramatically by a salesman who has no other interest.

Cut prices, long trade-in allowances, voluminous newspaper advertising all are being tried, and all are found wanting. They don't create the required store traffic.

**Fact No. 2—Creative selling at the retail level must be resumed.**

Broadly and generally speaking, the gas industry is sadly unprepared to meet the challenge of the buyers' market.

Too many gas utilities have retreated from their merchandising responsibilities and thereby have incurred very serious liabilities.

To an extent far too great, utilities have been entrusting their destinies to appliance dealers—in many instances to dealers who sell both electric and gas appliances—and such dealers have devoted secondary interest to the sale of gas appliances.

All too often we find that the gas industry has advertised and promoted a preference for gas appliances which has induced the prospect to visit the store, only to have his interest switched to the purchase of an electrical appliance.

Such is the power and persuasion of salesmanship. Truly no man can serve two masters. Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., who has contributed so generously and effectively to the welfare of this industry recently wrote:

"To me it is fundamental that a gas utility cannot leave the merchandising of gas appliances to retail outlets and divorce itself from all activities related to appliance merchandising. The result that must follow is indicated in your letter—markets have degenerated dangerously."

**Fact No. 3—Manpower available for selling gas appliances is wholly inadequate.**

The gas industry is pathetically undermanned with salesmen. The most careful estimates that we can make indicate that, in all likelihood, there are not more than 1,500 strictly utility salesmen in this country.

When all the facts are available it may be found that there are sufficient customer-making possibilities to main-

tain one salesman per 2,000 meters and that such a group of customers, subjected to carefully developed creative selling, would, as a national average, provide energetic gas appliance salesmen with generous incomes.

If this guess proves to be a sound one, there should be 10,000 active gas appliance salesmen ringing doorbells every day.

From such premises it is apparent that we may have immediately ahead of us the prodigious undertaking of recruiting, selecting and of providing training and supervision that will result in the permanent addition of 8,500 salesmen to the wholly inadequate force now attempting to preserve the future of the gas industry.

If you have not carefully studied Hugh Cuthrell's letter of February 15 to gas company executives on the subject of water heater competition and the accompanying program for action based on a national survey of public attitudes toward hot water service, you will gain much sound perspective by doing so.

Think of your advantage when your salesman is trained to tell the exclusive story of the points of difference and advantages of the gas refrigerator that stays silent and lasts longer, as compared with the problem which confronts the electric refrigerator salesman in competition with a dozen other electric refrigerators all essentially alike.

In selling gas air conditioning, you not only have a product of completely exclusive design, but in many areas the effective assistance of the electric utilities can be enlisted because experienced electric utilities do not want to serve the short-term summer peak demand of electric compressor air conditioning.

The all-year gas air conditioner is the answer to this complaint because it not only relieves them of an undesirable electric load but substitutes an electric load which is almost ideal.

Next, we must at all costs preserve the cooking and water heating load.

The progressive president of one of our large and well-managed Mid-West combination utilities has said to me:

"There is a great field for selling more efficient gas equipment throughout our area because there are still well over 50 percent of gas ranges, in our own instance, over 15 years old, and this should be a fruitful market to work on."

As all of us know, this condition is typical rather than exceptional, and such

conditions emphatically underscore the crying need for more gas appliance salesmen.

Our third objective should be to make fully effective use of appliances which represent weapons of aggression.

By this term I mean gas refrigeration and gas air conditioning, which can be used to invade those fields which the electric industry thought it had preempted.

Very frequently, the installation of such appliances has the effect of insuring the cooking and water heating load.

Moreover, these devices, by virtue of their substantial gas consumption during the summer months, can be very directly applied to the problem of balancing the annual load factor (Charts 6 and 7).

Research studies applied toward attainment of these objectives can lead quickly and directly to adequate and comprehensive selling plans.

Such research should include careful case studies of other utility operations. You can easily discover a dozen gas utilities whose operating records indicate that their philosophies, organizations, strategy and techniques will bear fruitful results.

As research proceeds, it may be borne in mind that appliance manufacturers can make important contributions by bringing to you the fruits of their own sales research and a wealth of practical and varied selling experience.

After the results of your research studies are at hand, very definite and comprehensive selling plans and programs can be developed with assurance of certain and successful results.

The gas and the gas appliance industries are faced with opportunity unlimited and with a challenge without precedent.

## Keeping fit

● It is the social obligation of management to make certain that its executives are functioning at peak performance, both physically and psychologically. To keep top men from spinning, management must see that executives should:

Receive periodic medical checkups; receive periodic psychological evaluations; be given an adequate number of assistants of proper ability; have their time pressures reduced through improved selling; be given training in leadership.—Dr. Stanley G. Dulsky, Chicago Psychological Institute.

# OBITUARY

## Addison W. Lee, Jr.

vice-president, Louisville Gas and Electric Co., Louisville, Ky., civic leader and pioneer in Louisville aviation, died May 1, 1949. He was 64 years old.

Mr. Lee had been active in the development of gas and electric facilities in Louisville for 42 years. He had been a director and vice-president in charge of operations of the utility since 1932.

A native of Louisville, Mr. Lee graduated from Rose Polytechnic Institute, Terre Haute, Ind., in 1906. He was a member of American Gas Association and many civic, social and professional clubs.

## How to keep America

(Continued from page 14)

for the rest of the world.

This is a situation *you* can remedy.

The second thing you can do is to become active politically. This is not too difficult. In fact, it's fun. It's a good hobby. And it pays tremendous returns.

What you do in politics in a single day may affect the future for many generations to come. You can never tell how far-reaching your influences may be, and you should proceed on that basis.

(1) The very first thing for you to do is to make sure you are registered as a voter. And get others to register. Many elections are won or lost on registration day.

(2) Then, it is necessary for you to become acquainted with political leaders and public officials.

It is amazing how few prominent business and professional men are personally acquainted with their Senators and Congressmen. Worse still, some of them do not even know the names of their Washington representatives.

(3) Next, it is important to know what the various *candidates stand for*. You can perform a real public service by insisting that each candidate and office-holder be explicit about his position on every important question.

(4) Then, it is necessary for you to be thoroughly familiar with current public issues. Get your name on the mailing lists of various organizations that keep pace with political developments. Keep posted. Be prepared to express a well-informed, well-reasoned point of view.

(5) The next suggestion is that you make your political opinions available to the public—and to the people who work for you and with you.

Voters need and want your advice. It is astounding how many unthinking persons who are dependent on the returns of industry for their livelihood, take the crackpot's advice on public matters, when the businessman is too busy or too timid to offer his advice.

(6) The next step is to get out and work for your political organization. Practically every businessman is willing to contribute cash—but too many stop right there.

It is the sacrificial effort of leaving your fireside and office to ring doorbells that could make the difference between winning and losing in today's great struggle.

(7) The next step is to vote and to help get out the vote on election day.

On election day, 45 million voters stayed away from the polls. Can you beat that for a civic scandal! More voters failed to exercise their right to vote than voted for all the presidential candidates put together!

(8) And no matter how the election turns out, you can and should maintain close contact with your public officials.

There is still another thing you can do. That is to have a thorough-going program of *human relations* in your business concern. Remember that *you* are Mr. Private Enterprise, and govern

yourself accordingly.

If we are to save the competitive system, as I am convinced we must do—someone (that means you) must start telling the facts of life about business to your employees. The principal requirement is that you make certain you are using real, honest, understandable facts, and not bee-and-flower platitudes.

Tell them what your company is doing—what its competitors are doing.

Tell them what the figures in the bookkeeping department are all about.

Tell them what happens to a dollar when a customer buys the product they make.

Tell them about the new dollars of capital you would like to have from the stockholders to buy more facilities and tools. Show them how many dollars it takes to make just one job in the plant.

Make it clear that your policies are progressive and adaptable to change.

Use simple words and pictures.

You will be amazed at how new and interesting some of these things can be to workers. And you will be amazed, too, at how you can clear up misunderstandings and wrong assumptions.

Telling employees what makes the business system tick is not an easy job, but it is probably one of the most important obligations which confronts you today.

No work in America is more important than the task of arousing every citizen for the defense of his individual political and economic freedom. There should be an awful sense of urgency—a blazing faith—an awareness of personal dedication on the part of every American.

We can pray and we can work for what we know is right. We can perform something worthy to be remembered. Perhaps we can sum up all of our hope and determination by paraphrasing Winston Churchill's immortal words. "Let us gird ourselves to do our duty—so bear ourselves that if the United States of America shall live a thousand years, men will always say—this was her finest hour."

## New A.G.A. members

### Gas companies

Graben Gas & Water Co., Ada, Okla. (Miss Mildred Laughlin, secretary)  
Lancaster County Gas Co., Lancaster, Pa. (A. S. Morgan, president)  
United Gas Corp. of Washington, Portland, Ore. (John S. Shute, president)

### Service companies

Stone & Webster Service Corp., New York, N. Y. (P. J. Rempe, vice-president)

### Manufacturer companies

American Incinerator Corp., Detroit, Mich. (E. E. Smauder, president)  
Bryan Steam Corp., Peru, Ind. (O. C. Skinner, manager)  
Clark Bros. Co., Inc., Olean, N. Y. (D. K. Hutchcraft, vice-president & director of sales)  
Twin City Gas Specialty Co., Minneapolis,

Minn. (Edwin E. Anderson, president)  
The Williamson Heater Co., Cincinnati, Ohio (G. W. Denges, vice-president)

### Individual members

Fred D. Adams, Adams Sales Co., Waterloo, Iowa  
J. F. Aicher, E. A. Wilcox Co., San Francisco, Calif.  
S. J. Asprey, W. T. Carmichael Ltd., Auburn, Australia

(Names of more new members will be published next month).

## Chamberlain elected Milwaukee president

GLENN R. CHAMBERLAIN has been elected president of Milwaukee Gas Light Co., Milwaukee, Wisc., succeeding J. A. B. Lovett who resigned April 18 due to ill health. Since February 8, Mr. Chamberlain has been vice-president and director of the parent organization, American Light and Traction Co., and executive vice-president of Milwaukee Gas Light Company and Milwaukee Solvay Coke Company.

Other American Light and Traction subsidiary promotions include the appointment of Louis G. Kreuz as vice-president and general manager, Milwaukee Solvay Coke Co.; advancement of Roland Paulin to succeed Mr. Kreuz as assistant manager of operations in the Detroit district of Michigan Consolidated Gas Co.; and promotion of Paul E. Ewers to succeed Mr. Paulin as commercial office manager, Michigan Consolidated.

The new Milwaukee Gas Light president, Mr. Chamberlain, started his business career with Grand Rapids Gas Light Company in 1897 and became president and general manager in 1905. When Grand



G. R. Chamberlain



L. G. Kreuz



Roland Paulin



P. E. Ewers

Rapids became a part of Michigan Consolidated Gas Co., he was named first vice-president, a director and member of the executive committee. Early this year he was elected vice-president and a director, American Light and Traction Co., parent of Michigan Consolidated.

Mr. Chamberlain is also a director of Michigan-Wisconsin Pipeline Company and president and a director of Austin Field Pipe Line Company. He is a former president of Michigan Gas Association and an organizer and vice-president of the former National Commercial Gas Association. He is currently a member of American Gas Association.

Mr. Kreuz is a veteran of the gas and coke industry, having been employed for 30 years in Detroit with Michigan Consolidated Gas Company. Following graduation from University of Wisconsin in 1917 and two years' experience with Consolidated Gas Co. of New Jersey, he started with Michigan Consolidated as cadet engineer, advanced to retort foreman, chief chemist, staff engineer, superintendent of production, assistant to the general manager, and

assistant manager of operations. He is a member of American Gas Association, Michigan Gas Association, and The Detroit Engineering Society.

Mr. Paulin has been with Michigan Consolidated for 23 years, for the past five years as commercial office manager. He was graduated from Purdue University in 1926 as a chemical engineer, and has served as general foreman, manufacturing department, heating engineer, assistant to the sales manager and later supervisor, industrial sales department. He is a member of American Gas Association, Michigan Gas Association, and The Detroit Engineering Society.

Mr. Ewers is coordinator of Customer Activities Group, Accounting Section, American Gas Association. He has been superintendent of customer relations for Michigan Consolidated since 1944 and before that, superintendent of credit and collections. He was elected president, Detroit Association of Credit Men, on May 10, and is a member of Retail Credit Association and The National Office Management Association.

## Personal and otherwise

### Snyder made board chairman at Albany

OTTO SNYDER was elected chairman of the board of directors, New York Power and Light Corp., Albany, N. Y., on May 12. Wesley J. Gilson was elected to succeed Mr. Snyder as president of the company.

Mr. Snyder is a former director, American Gas Association, and has been president and a director, New York Power and Light Corporation since 1929. He has been associated for 32 years with companies of the Niagara Hudson System, of which he is a vice-president and a director. Mr. Gilson has been a

vice-president of New York Power and Light Corporation since 1933, and has been with the company for 29 years.

Mr. Snyder is a graduate of the engineering college at Cornell University. After serving with various utilities throughout the country, he joined Adirondack Electric Power Company at Glens Falls in 1917 and became general manager of the company in 1925. Following merger of that company with New York Power and Light, he was elected a vice-president and was advanced to president in 1929.

Mr. Gilson was graduated from Worcester Polytechnical Institute. He served as an engineer and superintendent of operations for Stone & Webster Corporation from 1913 to 1920, when he joined Adirondack Power and Light Corporation at Oneida, N. Y. Mr. Gilson was made general superintendent, New York Power and Light Corp., in 1927. He was elected vice-president in 1933 and a director in 1944.

### Public Service lists personnel changes

TWO PERSONNEL changes in the commercial department of Public Service Electric and Gas Co., Newark, N. J., have been announced by George H. Blake, president.

Edward R. Eberle, managerial assistant, has been made assistant to the general commercial manager, replacing Gordon M. Peterson who recently was made assistant general commercial manager.

George B. Webber, has advanced from as-

sistant executive assistant, home office, to division commercial manager, central division, replacing Louis R. Quad, who was made assistant general commercial manager.

Mr. Eberle was graduated from Yale University in 1931, and from Harvard University Graduate School of Business Administration in 1933. He started with Public Service on August 22, 1933. He has served on various committees in American Gas Association and Edison Electric Institute.

Mr. Webber, upon graduation from Cornell University in 1926, started with Public Service on July 1 of the same year. He served as president, New Jersey Gas Association in 1939, and currently is a director of that organization. He has been a member and chairman of various committees of American Gas Association and Edison Electric Institute.

## Parker retires from Consolidated Edison



J. C. Parker

**JOHN C. PARKER** retired May 1, 1949 from his post as a vice-president of Consolidated Edison Co. of New York, Inc. Active in American Gas Association, Mr. Parker is succeeded as A. G. A. director by L. B. Bonnett, also a vice-president, Consolidated Edison Co. of New York, Inc.

Mr. Parker joined the former Brooklyn Edison Co., a subsidiary of Consolidated Edison, in 1922 as electrical engineer and later became vice-president in

charge of all Brooklyn Edison engineering.

From 1932 to 1936 he served as president of Brooklyn Edison. When that company was merged into Consolidated Edison in 1936, he became a vice-president in the parent company and was responsible for departments engaged in research and development. Recently, he has been engaged in consultative duties and special assignments.

He received a degree in mechanical engineering from University of Michigan in 1901, and later served for nine years as engineer for Rochester Railway and Light Company. He was professor of electrical engineering at University of Michigan for seven years, from which he also received B.S., A.M. and E.E. degrees. Mr. Parker holds the degree of Doctor of Engineering from both University of Michigan and from Stevens Institute of Technology.

During World War II, Mr. Parker served as consultant to War Production Board, War Manpower Commission and Foreign Economic Administration. The Secretary of War appointed him a member of the National Technological Advisory Commission. He is a former president, American Institute of Electrical Engineers. At present he is on U. S. executive committee of World Power Conference and is scheduled to address United Nations Scientific Conference at Lake Success in August on conservation and utilization of natural resources.

For a number of years Mr. Parker has been associated with Foundation for Economic Education and National Industrial Conference Board.

## Bonnett appointed director by A.G.A.



L. B. Bonnett

**APPOINTMENT** of Leland B. Bonnett, vice-president, Consolidated Edison Co. of New York, Inc., as a director, American Gas Association, has been announced by H. Carl Wolf, A. G. A. managing director. Mr. Bonnett fills the

directorship formerly held by John C. Parker, who recently retired from Consolidated Edison.

Mr. Bonnett graduated from Syracuse University and in 1923 joined Brooklyn Edison Company as inside plant engineer. He was appointed purchasing agent in 1926, and in 1938 became engineer of design and planning for Consolidated Edison Company. He is currently in charge of the utility's electrical, mechanical, process and system engineering

departments and has served as a vice-president since 1940.

A director of Brooklyn Bureau of Social Service, Mr. Bonnett is also a fellow of American Institute of Electrical Engineers and member of American Society of Mechanical Engineers, N. Y.; State Society of Professional Engineers, and Engineers' Club of New York. He is a former consultant for Naval Affairs Investigating Committee, House of Representatives.

## Philadelphia Electric changes announced

**T**WO executive changes were announced recently by Philadelphia Electric Company. Vincent P. McDevitt, general counsel since 1947, was elected vice-president in charge of legal matters, and A. S. Corson was appointed comptroller.

Mr. McDevitt attended Wharton School of the University of Pennsylvania and Temple University Law School. He was appointed assistant district attorney of Philadelphia in 1935, and for ten years was prominently iden-

tified with the work of that office. In 1945 he was named chief counsel, Pennsylvania Utilities Commission, and served in that capacity until December 1946, when he resigned to devote full time to his private law practice. He was senior partner of the law firm of McDevitt, Philips, and Farran at the time he joined the utility in 1947.

Mr. Corson attended the University of Pennsylvania and has spent his entire business

career with The United Gas Improvement Company and affiliated companies. He was vice-president of that company at the time of his recent appointment. He is active in numerous accounting organizations, and is a member of American Gas Association, Edison Electric Institute, Pennsylvania Gas Association and Pennsylvania Electric Association. He is director of Liberty Title and Trust Company of Philadelphia.

## Tuttle made Michigan vice-president

**H**ENRY TUTTLE has been elected executive vice-president, Michigan Consolidated Gas Company. Mr. Tuttle has been vice-president and treasurer since August 1945. He is succeeded as treasurer by William A. Rhaesa, for the past four years assistant treasurer.

Mr. Tuttle's promotion will permit President Henry Fink to devote more time to the affairs of American Light and Traction Co., the parent concern, and to the development of other subsidiaries of American Light.

Mr. Tuttle was first employed in 1920 as service man in the shops department. The

following year he became a clerk in the accounting department, where he held positions of increasing responsibility until 1937 when he became assistant treasurer and assistant secretary of the company. In 1940 he was made vice-president and controller.

Mr. Rhaesa, the new treasurer, is another Michigan Consolidated executive who started at the bottom. He entered the accounting department in 1927, became supervisor of statistics in 1937, and chief accountant in 1944. Both Mr. Tuttle and Mr. Rhaesa are members of American Gas Association and Michigan Gas Association.



Henry Tuttle



W. A. Rhaesa

## San Diego advances top officials

**M. KLAUBER AND A. E. HOLLOWAY** were elected to the highest offices of San Diego Gas & Electric Co., San Diego, Calif., on April 26, 1949. Mr. Klauber, former president, was elected chairman of the board; Mr. Holloway was elected president, and H. G. Dillin, vice-president in charge of sales.

Hance Cleland, former board chairman, who will reach the company's retirement age next October, requested that he be relieved of his position at this time. He will remain a member of the board.

Mr. Klauber, Mr. Holloway and Mr. Dillin all joined the company direct from college. All started near the "bottom of the ladder" and grew up in prominence and importance with their company. All three executives are members of the American Gas Association.

Mr. Klauber, the new chairman of the board, was born in San Diego and started working for the San Diego utility in 1911 as

a salesman. He was subsequently engineer of records, superintendent of the electrical department, assistant general superintendent, general superintendent, vice-president and general superintendent, vice-president in charge of operations, vice-president and general manager, and president since 1946. He has served as a member of the board of directors since 1919 and as a vice-president since 1923.

Mr. Holloway, the new president, also started with the organization as a salesman. He was subsequently appointed manager of the new business department and vice-president in charge of sales. He has been a director of the company since 1912 and a vice-president since 1932.



L. M. Klauber



A. E. Holloway



H. G. Dillin

dent of the utility since 1932.

Mr. Dillin, the new vice-president in charge of sales, started with the utility in 1924 as a draftsman. Two years later he became contract clerk of the new business department, and subsequently, the engineer in charge of rates, rules and regulations and commercial manager, a position he has held since last October.

## Coast Counties lists personnel changes

**A**POINTMENT of Hugo W. Dreuel as manager, organization planning and personnel for Pacific Public Service Company and Coast Counties Gas & Electric Co., San Francisco, Calif., has been announced by E. G. Lawson, president, Pacific Public Service Co., and board chairman, Coast Counties Gas & Electric Company.

A. E. Strong retired May 1 as vice-president and regional manager, Coast Counties Gas & Electric Co., following 42 years of continuous service. He was succeeded by R. L. Hay-

den, also a vice-president and director.

Alan R. Bailey, vice-president in charge of operations for two principal subsidiaries of Pacific Public Service Co., Coast Counties Gas & Electric Co. and Arrowhead and Puritas Waters Inc., was elected to the parent utility's board of directors.

Mr. Dreuel, who has been serving as assistant to Mr. Lawson, has extensive experience in business administration, organization and personnel work.

Mr. Strong retired due to ill health effec-

tive May 1 but will remain a director of Coast Counties Gas & Electric Company. He joined a predecessor company in 1907—in 1929 became general superintendent, Coast Counties Gas & Electric Co., and in 1945 was elected a director and regional manager. In 1947, Mr. Strong was made a vice-president.

His successor, Mr. Hayden, has been with the utility since 1930. Mr. Strong, Mr. Hayden and Mr. Bailey, and Mr. Dreuel are members of American Gas Association.

## New Orleans utility elects vice-presidents

**T**HREE EXECUTIVES of New Orleans Public Service Inc. were elected vice-presidents and three prominent New Orleans business leaders were named to the board of the utility company at a meeting of the board of directors April 25. A. B. Paterson, president, has announced.

Elevated to vice-presidential posts were W. J. Amoss, director of advertising, George S. Dinwiddie, economist and Streuby L. Drumm, general sales manager. The new di-

rectors are Lester F. Alexander, A. B. Free-  
man and Joseph Haspel, Sr.

The three new vice-presidents have served the utility company in various capacities for many years and each one now holds an executive position in the organization. Mr. Amoss, presently director of advertising, is an engineering graduate of Tulane University. He has been associated with Public Service since 1931 when he was employed as an engineer in the industrial and commercial service

department. He is a member of American Gas Association.

Mr. Dinwiddie, an economist, is a graduate of the College of Commerce of Tulane, where he obtained his Master's Degree in Business Administration in 1943. He was first employed by Public Service in 1936 as a tax and research clerk. Mr. Drumm, now general sales manager, is a graduate of United States Naval Academy and became connected with Public Service in 1923 as a commercial salesman. He is also a member of A. G. A.

## Gas men take Chamber of Commerce posts

**D**A. Hulcy, president, Lone Star Gas Co., and vice-president, American Gas Association, was appointed vice-president, United States Chamber of Commerce, at a meeting of the board of directors. Mr. Hulcy has been serving as chairman of both the Natural Resources Department and Public Policy Committee of the Chamber.

Two other prominent gas men, Dean H. Mitchell, president, Northern Indiana Public Service Co., Hammond, Ind., and George E. Whitwell, vice-president, Philadelphia Elec-

tric Co., have been elected to represent the fifth and second election districts, respectively, on the Chamber of Commerce.

All three men are active in American Gas Association and have made important contributions to the gas industry.



D. A. Hulcy



D. H. Mitchell



G. E. Whitwell

## Young made Columbia Gas vice-president

GEORGE S. YOUNG, in charge of operations for Columbia Gas System since 1946, on May 5, 1949 was elected vice-president of the system's parent company, The Columbia Gas System, Inc.

A graduate of United States Naval Academy and Columbia University, Mr. Young joined Columbia system in 1930 as an engineer. In 1936 he became vice-president and general manager, Michigan Gas Trans-

mission Corp., one-time Columbia subsidiary. He moved to New York as vice-president, Columbia Engineering Corp., in 1942. He is also a director in the Columbus, Pittsburgh and Charleston operating companies.



G. S. Young

## Natural gas problems

(Continued from page 17)

that the fact that in a given field it might not be possible to conserve flare gas at a profit is no excuse for permitting a continuation of this waste. To the extent public opinion can make itself effective through legislation and regulation, it will probably require producers to offer for market and purchasers to accept for market casinghead gas which has hitherto been flared.

We are currently engaged in Texas in a series of hearings to determine the most efficient rate of production for each oil field in the State of Texas; and, in connection with other reservoir and production data, we are asking the operators to tell us in each case how much casinghead gas is being flared.

Since my own survey of the state must await completion of the hearings now in progress, I would like to quote from the January 1949 issue of *World Oil*. This magazine states that by 1950 a total of 138 casinghead gas conservation projects will utilize a total of approximately two and one-quarter billion cubic feet of casinghead gas. The article states that "the postwar period marks the greatest expansion of casinghead gas conservation in history."

The final problem to be discussed is that of ratable take between separate producers within a field and between various fields. For many years, there was relatively little proration of natural gas production by the Railroad Commission of Texas. As a result of the *Consolidated v. Thompson* decision of United States Supreme Court, some attorneys expressed the opinion that the Commission was prohibited from restricting the production of any gas well to less than 25 percent of its open flow potential, if such amount of gas could be produced

without waste; and if a given producer was diligent enough to find markets for his gas, he was entitled to produce up to 25 percent of his potential even though an offset operator might have no market for his gas and, therefore, would suffer underground drainage. Many gas pipeline companies, however, adopted the policy of offering connections to all of the operators in a given field and would then distribute their take from all of the wells to which they were connected on some formula considered reasonable by them even in absence of any Railroad Commission proration order requiring such division of take.

In several gas fields, the operators came to the Commission and asked that an allocation formula be adopted and that gas proration schedules be issued. In most of these cases, the Commission issued such allocation orders based upon the request of the operators. Although, naturally, not all of the operators were satisfied with division of allowables determined by the Commission, none challenged the Commission's authority in court; so the Commission's authority to require ratable take was left in doubt. However, in the *Corzelius v. Harrold* decision the Supreme Court of Texas, in the opinion of many attorneys, decided that the Railroad Commission had not only the authority but the responsibility to require ratable taking of gas.

Recently, the Commission issued a proration order for Panhandle Sweet Gas Field somewhat similar to the original proration order for the Panhandle Field which had been stricken down many years ago in the famous Supreme Court *Consolidated* decision. It was assumed that changed conditions would justify the Commission in issuing this order. The order was attacked in court; and, although I make no attempt to interpret the court decisions, apparently

the refusal of a three-judge federal court and a district state court to grant an injunction restraining the Commission from enforcing this order would indicate that the Commission does have the authority and responsibility in all gas fields to require ratable take if necessary to prevent inequities.

Therefore, based upon present trends, I would predict that the evolution of gas proration will roughly parallel that which occurred in oil proration about 15 years ago and that, eventually, we will arrive at the situation in which the total market for gas from the State of Texas will be divided among all of the gas fields in the state upon some reasonable basis and the market thus assigned to each field will be divided among the producing wells in the field on an equitable basis. First consideration, however, will likely be given to the casinghead gas which is available for market and allowables will not be assigned to gas wells until the casinghead gas, which would otherwise be flared, has been furnished a market.

I do not anticipate that the Commission or any other regulatory body will ever attempt to require a gas pipeline to offer a market for casinghead gas from a particular oil field or connect to any certain gas well. Essentially, the same procedure will likely be followed as is today followed in allocating market demand for oil. If, today, certain wells in a given oil field are without pipeline connections, no pipeline is ordered to connect to them, but the Commission assumes this to be evidence that oil is being produced in excess of market demand from the field and cuts back on the allowable for the field until pipeline connections have been offered to the unconnected wells.

Likewise, if an entire oil field is without a market, the Commission does not attempt to require any purchaser to take this oil, but considers this to be evidence that the state as a whole is producing in excess of market demand. Over-all cuts in allowables for the state generally result in markets being made available to the fields which have been without opportunities to sell their oil. Future developments may demonstrate that such a procedure is applicable to gas.

In conclusion, I should like to pay tribute to the American gas industry for its part in making possible the truly magnificent gas conservation program which is under way today.

## Indiana group holds record meeting

E. HATLEY, Central Indiana Gas Co., Muncie, Ind., was elected president, Indiana Gas Association, during the group's largest convention at French Lick, Ind., April 28 and 29. Theme of the thirty-ninth annual convention was "It's Better . . . It's Gas!"

Also elected were: vice-president—C. K. Graham, Southern Indiana Gas & Electric Co., Evansville; re-elected secretary-treasurer—Clarence W. Goris, Northern Indiana Public Service Co., Gary; directors—Fred W. Dopke, Indiana Gas & Water Co., Inc.; E. M. Hahn, Kokomo Gas Co.; E. G. Peabody, Citizens Gas & Coke Utility, and A. B. Brown, Southern Indiana Gas & Electric Company.

Louis B. Schiesz, president, Indiana Gas & Water Co., Inc. and retiring president of the state association, asserted that by the end of 1948 member companies were serving 526,000 customers, an increase of 20,000 over the previous year.

"Volume cooking preparation is one of the most desirable loads in the industry," declared John J. Bourke, director, Commercial Gas Cooking Promotion, American Gas Association. Mr. Bourke warned the delegates to protect the industry against the inroads competition is attempting to make in the commercial cooking field.

Greetings from A. G. A. were delivered by John W. West, Jr., A. G. A. assistant man-



Officers elected by Indiana Gas Association at French Lick Springs Hotel: (Left to right) C. K. Graham, vice-president; A. E. Hatley, president, and C. W. Goris, re-elected secretary-treasurer of the group

aging director, who reviewed promotional and research activities of the Association and discussed plans for the future.

To combat the competitive influence of the electric industry, H. Leigh Whitelaw, managing director, Gas Appliance Manufacturers Association, called for all sections of the industry, utilities and manufacturers, to actively

and aggressively promote and sell gas appliances.

Edward Falck, consulting engineer, Washington, D. C., discussed the role that management must play in the formulation of policy matters if the present system of public utilities under public regulation is to work and work well.

## P.C.G.A. exhibits at western metals show

THOUSANDS of western industrial buyers had an opportunity to inspect and appraise latest developments of the nation's metal working industries, including modern gas-fired industrial equipment of all types, at the sixth Western Metals Exposition and Congress held April 11 to 15 in Los Angeles.

The congress and exhibit, sponsored by American Society for Metals and 18 cooperating technical societies, including Pacific Coast Gas Association, drew a registered

attendance of 24,036. Foremost among the 192 exhibitors were a number of nationally prominent manufacturers of industrial gas equipment.

Pacific Coast Gas Association in cooperation with Southern California and Southern Counties Gas Companies presented the story of natural gas in the Southern California metal working industries through 24 color photographs shown on an automatic slide machine.

## Associated organization activities

### Pennsylvania group names Richards president

L. B. RICHARDS, president, The Harrisburg Gas Co., Harrisburg, Pa., was elected president of Pennsylvania Gas Association at the group's forty-first annual meeting at Galen Hall, May 17-19. Approximately 425 gas men and manufacturers attended the three-day sessions.

Thomas S. Lever, Jr., The Philadelphia Gas Works Co., was elected first vice-president of the association; Herbert C. Gross, Philadelphia Electric Co., was named second vice-president; Edward G. Boyer, Philadelphia Electric Co., third vice-president; William Naile, Lebanon Valley Gas Co., re-elected secretary, and James A. Schultz, Consumers Gas Co., re-elected treasurer. B. V. Pfeiffer, The United Gas Improvement Co., is retiring president.

The opening meeting was addressed by Hugh H. Cuthrell, The Brooklyn Union Gas Company and first vice-president,

American Gas Association. Wednesday's program, under the leadership of J. L. Harrison, The Harrisburg Gas Co., covered recent developments in producing gas for peak and base loads with catalytic cracking plants. Difficulty of disposal of waste water from plants was presented from the viewpoint of the State Sanitary Water Board's requirements by C. W. Jordan, chemist, The United Gas Improvement Company.

Under the leadership of Henry W. Parker, Allentown-Bethlehem Gas Co., William A. Fitzsimmons, New Haven Gas Light Company discussed problems in gas distribution and Paul A. Fusselman, Philadelphia Electric Co., described mechanical equipment used in the installation and maintenance of pipelines. E. N. Keller, Philadelphia Electric Co., and his associate, George W. Fewkes, outlined principles of job evaluation. E. R. Eberle, Public Service

Electric & Gas Co., spoke on employee performance rating.

On Thursday, the subject of employee and customer relations was covered from several angles under the leadership of Henry R. Flanagan, Philadelphia Electric Company. The employee relations feature was presented by Leslie A. Brandt, The Peoples Gas Light and Coke Co., Chicago, and the viewpoint of customers and importance of maintaining good relations with customers, was covered by George A. Saa, public relations consultant, Indianapolis. H. R. Zeamer, The Philadelphia Gas Works Co., headed the sales promotion program on which H. D. Hewey, Illinois Power Co., emphasized the usefulness of gas water heaters and James J. Deeley, The Brooklyn Union Gas Co., described his company's cooperative dealer plan.

## Southern gas convention keynotes achievements



Officers, directors and section chairmen of the Southern Gas Association: (Standing, left to right) L. L. Peters; C. I. Wall, chairman, operating section; M. H. North, chairman, sales section; L. L. Dyer, second vice-president; E. T. Anderson, secretary; C. H. Zachry; J. H. Wimberly; V. H. Luneborg,

chairman, employee relations section; H. K. Griffin; A. H. Weyland. (Seated, left to right) M. S. Hitchcock; R. F. Hinckley; C. H. Horne, first vice-president; L. L. Baxter, president; W. H. Ligon, past-president; W. L. Woodward; P. E. Behr, chairman, accounting section; D. A. Strickland, C. B. Wilson

A record attendance of more than 1,100 representatives of the gas industry from 13 Southern states discussed every aspect of the business at Southern Gas Association's forty-first annual convention in Biloxi, Mississippi, April 20-22. L. L. Baxter, president, Arkansas Western Gas Co., was elected S. G. A. president. More than 80 speakers addressed the three-day meeting.

A keynote of progress was sounded by immediate past-president, Wister H. Ligon, president, Nashville Gas and Heating Co., when he told of plans to spend \$3.3 billion for expansion of the industry within the next five years.

Noting that approximately 80 percent of this capital will be spent by Southern companies to build additional transmission and distribution pipelines and to expand production facilities, Mr. Ligon said that "it will take at least two years to meet the demand for natural gas from new customers in the South and North-East."

He said that "the natural gas industry has expanded faster and on a more stable basis than any other industry in the United States."

"We now face a highly competitive appliance market," Ligon continued, "but fortunately we are still in the driver's seat." He said that the gas industry can keep this position only by united and "aggressive action."

Gas men received pertinent facts on national defense problems and the Russian situation from Lt. General Ira C. Eaker, USA (ret.), the convention's feature speaker.

Commenting on General Eaker's talk, the association's managing director, Robert R. Suttle, declared that "in the interests of national defense alone, the Federal Power Commission should remove its restrictive regulations which are preventing even greater expansion of the natural gas industry."

The possibility that some natural gas companies may soon have to increase consumer prices was also pointed out by Mr. Ligon. "In the face of higher taxes from federal, state and local governments—and with no prospect of the tax burden being eased—plus increased costs of pipe, mate-

rial and labor, it is remarkable that it has not been necessary for the gas industry as a whole to make a general rate increase during or since the war," he declared.

There is danger in failing to recognize how far we are going in the direction of destroying our American free enterprise system, D. A. Hulcy, president, Lone Star Gas Co., and vice-president, American Gas Association, told the delegates. He said that the gas industry has advanced because of the "realization on the part of both top management and employees that we are citizens, with responsibilities to our communities."

Citing gains made by the industry, which now serves 22,600,000 customers, Mr. Hulcy asserted that "natural gas is cheaper for house heating than coal in the center of the bituminous coal area."

Gas companies should welcome the return of competition which is the basis of our country's growth, Warren R. Whitney, James B. Clow & Sons, Birmingham, said. But he warned that failure to abide by ethical practices "can play right into the hands of those who want to destroy our present American system."

### Minimum standards

Minimum codes and standards for safe and efficient installation of gas equipment were advocated by Dwight M. Baker, Oklahoma Natural Gas Co., Tulsa, who suggested that American Gas Association issue a basic dealer-serviceman's manual.

Frank H. Trembley, Jr., sales manager, The Philadelphia Gas Works Co., urged manufacturers to increase production of single-point ignition gas ranges, pointing out ease and economy of operation as selling points.

H. V. Beezley, United Gas Pipe Line Co., Shreveport, recommended cathodic protection as the most efficient means of corrosion control in gas transmission lines.

Only gas ranges can be properly used with modern pressure cooking utensils which require fast, controlled heat, said John J. Bourke, director, A. G. A. Commercial Gas Cooking Promotion, who added

that "the gas industry does not have to capitalize on imaginary features in its advertising."

Accountants will assume higher positions in the management of gas companies, predicted Gay Carroll, Humble Oil and Refining Co., Houston.

Roy Alderman, McCann-Erickson, Inc., New York, said that reader-performance ratings on gas range advertising were continuing to increase through this second year of the "Gas Has Got It" campaign.

The gas water heater is the "Cinderella girl" of the industry, according to Stanley Gorman, Gas Appliance Manufacturers Association. He cited large sales of automatic dish and laundry washing machines as causing an increased demand for hot water in American homes.

There is a large market for gas-powered air conditioning units in the South, O. E. Gammil, Jr., Carrier Corp., Syracuse, declared. He stated that gas executives must educate architects and engineers on the possibilities of the gas turbine driven plant.

Unless accidents on streets and highways are reduced, operators of trucks, busses and cabs can expect to be penalized by restrictive legislation, declared Professor Amos E. Neyhart, head of Public Safety Institute at Pennsylvania State College. He said utility companies can save great expense by the proper selection and training of drivers.

Dr. Pauline Berry Mack, also of Pennsylvania State College, told of a five-year experiment she conducted which indicated that hot water at a temperature of 180 degrees, a washing time limited to 30 minutes for one soap bath, and a three percent soap concentration, are essential for most effective home or commercial laundry work.

C. H. Sanders, Cooper-Bessemer Corp., predicted that the production of the gas-diesel dual fuel engine will increase.

R. C. Harrison, safety director, Southern Union Gas Co., Dallas, asked companies to keep records of time lost due to employee accidents away from work, and to participate in off-the-job safety programs.

A plea that greater research in the proper color markings of utility vehicles be conducted by the National Safety Institute and

gas companies was made by Arthur J. Nagoon, safety counselor, New Orleans Public Service Inc.

In recognition of long and outstanding meritorious service to the gas industry, N. C. McGowen, president, United Gas Corp., and Rudolph M. Schmidt, New Orleans Public Service Inc., were presented with honorary life memberships in Southern Gas Association.

Service awards were also given to Mr. Ligon, J. M. Lynn, Jr., Lone Star Gas Co.,

chairman of the sales section; J. B. Cookenbo, Houston, Natural Gas Corp., chairman of the accounting section; J. H. Collins, Sr., New Orleans Public Service Inc., chairman of the operating section, and R. A. Puryear, Jr., Alabama Gas Corp., general convention chairman.

Carl H. Horne, Alabama Gas Corp., Birmingham, was elected first vice-president; Lyman L. Dyer, Lone Star Gas Co., was named second vice-president; H. V. McCon-

key, Southern Union Gas Co., Dallas, and E. T. Anderson, Atlanta Gas Light Company, were named treasurer and secretary, respectively.

Appointed directors for three-year terms were Murray Hitchcock, American Meter Co., Atlanta; Floyd Carmichall, Lone Star Gas Co., Fort Worth; Hayden C. Frizzell, Texas Southeastern Gas Co., Bellville, and L. A. Farmer, Northern Oklahoma Gas Co., Ponca City.

## Prominent speakers head Canadian program

EDWIN L. HALL, director, American Gas Association Testing Laboratories, Cleveland, will be one of the principal speakers at the forty-second annual convention of Canadian Gas Association, June 16-20 at Bigwin Inn, Lake-of-Bays, Ontario. Mr. Hall is inventor of the Hall high Btu oil gas process which is one of the most promising A. G. A. research projects under the PAR program. He will speak on "Catalytic Reforming and Thermal Cracking."

Another A. G. A. speaker will be C. George Segeler, engineer of utilization, who will discuss "Things May Be Changing

Now." A timely topic, "Dealer Cooperation—A Problem of Synthesis," will be presented by H. D. Valentine, sales promotion manager, The Peoples Gas Light and Coke Co., Chicago.

Problems and prospects of the Canadian gas industry will receive special attention. T. Pates Pinckard, vice-president and general manager, United Gas & Fuel Co. of Hamilton, Ltd., will present the over-all industry picture. The significance of recent oil and gas discoveries in Alberta will be interpreted by Dr. Oliver B. Hopkins, vice-president, Imperial Oil Ltd., Toronto. The

high Btu oil gas plant at Port Stanley, Ontario will be described by H. E. Merrill, chief engineer, Dominion Natural Gas Co., Ltd., Buffalo.

Other features on the strong program include: "FM Radio Communication," by W. L. Dutton, operations engineer, Union Gas Co. of Canada Ltd.; and "After the Sale—What?" by Byrne Hope Sanders, editor, Chatelaine Magazine, Toronto.

A well-organized entertainment and recreation program will round out the convention.

## Altenbern heads Wisconsin association

CARL A. ALTENBERN, vice-president and secretary, Wisconsin Southern Gas Co., Burlington, has been elected president, Wisconsin Utilities Association, trade organization for electric, gas and local transportation companies.

Alfred Gruhl, assistant vice-president, Wisconsin Electric Power Co., Milwaukee, was elected vice-president, succeeding Mr. Altenbern.

Paul J. Imse, secretary and treasurer, Milwaukee Gas Light Co., was re-elected treasurer. The elected officers were formally installed at an installation dinner May 16, 1949.

Mr. Altenbern succeeds W. E. Schubert, Appleton. The new president is a member of the National Society of Professional Engineers and is currently president of the Southeast chapter, Wisconsin Society of Professional Engineers.



C. A. Altenbern



P. J. Imse

## Industrial relations

(Continued from page 14)

the cost of the plan. The employer will also withhold an additional  $\frac{1}{4}$  of one percent to be paid into the Unemployment Trust Fund. The workers' combined contribution for disability insurance and unemployment insurance shall not exceed one percent.

Governor Driscoll states: "The new program is built upon the simple principle that, as we have long provided insurance against loss of earnings due to involuntary unemployment for the man or woman who is able to work, it is even more necessary to provide similar protection for the person who is unable to work because he is disabled by sickness or accident. This new security measure is especially desirable today when the high cost of living makes it almost impossible for the average family to provide against the hazards of ill health and accidents."

● "Personnel Administration at the Executive Level" is a book recently published by the Navy Department. The book analyzes requirements of executive training, and covers organization, analysis, selection, evaluation, development, and inventory control. Copies may be purchased from United States Naval Institute, Annapolis, Md., for \$2.75.

● "The Gift of Freedom" is a pamphlet describing living standards and political freedom of the American wage earner. It is published by the Bureau of Labor Statistics and presents many facts which management should have at hand and which may well be passed on to workers by company communications. Copies may be obtained for 55 cents from the Bureau at Washington.

● The Bureau of Labor Statistics has published its report on the changes in wage rates and fringe benefits made under contracts between the United Auto Workers

(CIO) and Chrysler Corporation since 1939. This is the fifth of the series of wage chronologies for key companies.

## Vermont gas purchases

AS PROPERTIES of Central Vermont Public Service Corporation in Bennington and Brattleboro, Vt., have been purchased by Vermont Gas Corp., a subsidiary of North American Utility & Construction Corporation. Carbureted water gas plants at both locations will be converted to propane-air and operated in conjunction with a third distribution system in Claremont, N. H., owned by North American.

Samuel McLaughlin, manager, Claremont Gas Light Co., has been named vice-president of Vermont Gas Corporation and will supervise the three operations. Virgil Stark is president of North American and its subsidiary companies.

## New York men get McCarter Awards



Ralph D. Jennison (center), chairman of the board, New York State Electric & Gas Corp., Ithaca, presenting American Gas Association McCarter Medal for successful resuscitation to Theodore Bielowicz. Others are (left to right) Fred Van Winkle and Harold Bunn, who received McCarter Certificates of Assistance, and Earl Hart, head of the utility company's Auburn gas service department

### Underground storage

(Continued from page 20)

or in the wells. No liquid propane has been found in the wells or gathering system drips to date.

TABLE 1

AVERAGE OF SPOT CHECK ANALYSES

	Natural Gas	Mixture To Fields (percent)	Mixture From Fields (percent)
Nitrogen & Non-Condensables	11.3	15.3	13.6
Oxygen	0.2	2.3	Trace
Methane	74.7	65.5	72.0
Ethane	13.7	5.8	6.6
Propane	—	10.9	7.0
Butane	—	0.1	0.6
Carbon Dioxide	0.1	0.1	0.2
Total	100.0	100.0	100.0

A hydrate equilibrium curve as experienced for the straight natural gas and also for the normal propane-air-natural gas mixture is shown in Figure 2. For straight natural gas at 540 PSIA the hydrate equilibrium point is shown on the curve A as approximately 49° F, and in normal operation little trouble is encountered except at the wellhead or wellhead drip where there are restrictions with their subsequent cooling effect. An insulated wellhead house and indirect heater counteracts cooling effect by maintaining uniform temperature.

The hydrate equilibrium point for the normal propane-air-natural gas mixture at 540 PSIA as shown on Curve B is approximately 56° F. Some hydrate trouble was expected with the storing of the mixture and consequently the wellhead temperature was maintained at or

above 70° F. Out of a total of 293 storage wells some hydrate trouble was experienced in 37 wells.

Surveys in the wells revealed that a temperature of 49° F was present at a depth between 600 and 700 feet, rising gradually until it reached 60-62° F at approximately 1,335 feet. In these 37 wells, hydrate bridges formed anywhere between 150 feet and 700 feet below the surface in the well bore and effectively blocked the flow of gas. Neither the use of alcohol bottles nor shutting in of the well removed the bridge. The only effective method found was to open the well to atmosphere and let it blow the hydrate bridge out.

Hydrate bridges occurred more frequently when an insufficient amount of air was added to the mixture to maintain the 1,000 Btu heating value. By some experimentation and review of previous operating data, an upper limit of 1,030 Btu was set as the maximum allowable point and little hydrate trouble was experienced thereafter. The only control on the Btu range was the amount of air added to the mixture and it was limited to six million cubic feet per day. Some shipping delays necessitated a greater input of propane than was originally planned and it was at these high input periods that trouble was experienced.

High input rate of propane occasioned by the shipping and switching delays also created another problem. At times as many as 18 cars a day were unloaded instead of the 12 cars originally planned and the time spent in removing the vapor from the cars became a limiting factor. During the hot weather the propane vapor being pumped from the

tank cars would not reliquify fast enough and the tank pressure would rise above 200 PSIG, thus causing the relief valve to open. It was not possible nor feasible to install a refrigerating unit, so a water spray was attached to the tank using the relatively cold ground water, and this helped to reliquify the propane to a marked degree. This speed of unloading and vapor trouble necessitated leaving many cars with 40-50 PSIG of propane vapor to go back to the shipper.

When the gathering system was installed in the field, it was not cleaned by the use of a "pig" but was only purged and blown. High rates of reverse flow and the oxygen content of the propane-air-gas mixture caused old scale to flake off and some new iron oxide to form and then fall off which was carried to the wells and in some instances had to be removed by blowing the wells.

With a compression ratio of 5.2 times in the third-stage air compressor, temperatures actually reached 375° F or more. Excess oil in the compression cylinders formed particles of red hot carbon on the valves and deposited some oil in the air line. The carbon particles broke off and ignited the oil causing fire inside the air pipeline and raised the temperature of the air going to the mixing tower in excess of 450° F.

Careful regulation of lubricating oil did not entirely remove this hazard so an aftercooler was installed and the air cooled to 100° F. A fire dampener and carbon arrester was originally installed just ahead of the air-gas mixing point to keep any fire from the gas and propane. Total oxygen content of the mixture was five percent as a maximum and 17.7 percent was required to support combustion so no fire in the mixture was possible. The aftercooler installed at this time, together with the intercoolers originally installed, removed a considerable amount of water from the air and helped to reduce the quantity of water in the mixture stored in the field. It also offered another means of temperature control.

To keep the high-pressure, liquid propane positive displacement pumps from vapor locking in the suction valve ports it was necessary to increase the suction head. A natural gas pressure of 10-40 PSIG in excess of the vapor pressure of propane was imposed upon the mixing station storage tank by means of a differential pressure controller.

Interchangeability of the propane-natural gas mixture with straight natural

gas was calculated to be allowable at seven percent of 1,000 Btu propane-air in the mixture as shown in Figure 3. However, experimental testing indicated a higher allowable percent mixture and it was believed that little trouble would be experienced with as much as 18 percent propane-air in actual practice. It developed that approximately 21 percent of the mixture was propane-air before trouble in utilization developed.

From July 15 to November 1, 1948, a total of 1,194 cars containing 11,570,900 gallons of propane were handled. Losses due to various causes amounted to 427,520 gallons, therefore 11,143,380 gallons of propane were vaporized and mixed with 556,358,000 cubic feet of air to make 960 million cubic feet of propane-air gas with an average of 1,060 Btu. This was mixed with 10,660,000,000 cubic feet of natural gas to give the resultant propane-air-natural gas mixture a Btu value of approximately 1,007 and a specific gravity ranging from 0.720 to 0.790.

From December 13, 1948 to March 13, 1949, a total of 273 cars containing 2,783,920 gallons of propane were handled. Losses due to various causes amounted to 16,275 gallons, therefore, 2,767,645 gallons of propane were vaporized and mixed with 210,822,000 cubic feet of air to make 310,990,000 cubic feet of propane-air gas with an average Btu of 812. This was mixed with the propane-air natural gas mixture coming from the storage fields, and the resultant mixture transmitted to markets averaged 1,000 Btu.

These two operations meant that most of the natural gas received from Panhandle during the summer for storage was enriched twice with propane. During this second period, the propane-air percentage of the mixture transmitted to market at times rose as high as 22 percent at 1,000 Btu. At this percentage some trouble was experienced with reducing atmosphere process furnaces raw gas pilots, and a few home refrigerator burners; however, the number of service calls were not great in number and there were very few repeat calls. Higher gravities reduced the input to burners somewhat and in the case of space heating equipment failure to adjust for higher gravity resulted in slightly lower efficiencies. The mixture caused no other disturbances and was utilized all winter.

During the winter some modification in the plant layout was necessary for

good operation during the cold weather which, at times, reached minus 20° F. The mixing tower was changed back to a dehydration contact tower to prevent hydrate trouble in the transmission system. The propane was vaporized entirely by the steam heat exchanger and discharged into the suction of the gas compressors. No change was made in the air piping. During this type of operation the vaporization followed the heat balance equations perfectly, and it was necessary to temporarily install an oil field boiler to supply the necessary steam to the heat exchanger.

During the output cycle, composition of the gas was tested by Podbielnik analysis periodically and no really significant changes between the mixture put in storage and the mixture withdrawn from storage has been noted. The specific gravity of the gas coming from the storage fields has been a good index of the propane-air-natural gas mixture being recovered. It is estimated that by the end of March 1949 all of the propane-air gas will be recovered from the fields except for a small amount which has diffused with the cushion gas.

Total cost of the propane plant except for that material and equipment on hand and available for conversion and use was \$252,000. Cost of the 14,354,820 gallons of propane including freight to unloading station was \$1,576,100. Operating labor, material and supplies, and fixed charges amounted to \$266,900. Total cost of the approximately 1,271,000,000 cubic feet of propane-air gas was \$1,843,000 or an average cost of \$1.45 per thousand cubic feet.

The Michigan Public Service Commission approved the propane project to prevent a gas shortage during the winter 1948-49 and issued an order allowing Consumers Power Company to add a surcharge to the bills of customers for all gas used in excess of 2,500 cubic feet per month in order to pay for the increased cost of this emergency gas. The surcharge amounted to 14½ cents per thousand cubic feet of gas above the previously stated minimum.

All evidence shows that this project was highly successful and as a result no customer was curtailed in his use of gas beyond the restrictions already in force. This amount of gas together with the milder weather experienced during the past winter enabled the storage fields to go in the 1949 input cycle in a more improved condition than the previous year.



1949

## JUNE

May 30-June 1 •Fourth Annual Short Course in Gas Technology, sponsored by Southern Gas Association, Texas College of Arts and Industries, Kingsville, Texas  
13-14 •The Institution of Gas Engineers, London, England  
15-17 •Fourth International Gas Conference, London, England  
16-20 •Canadian Gas Association, annual convention, Bigwin Inn, Lake of Bays, Ontario  
20-21 •A. G. A. N. Y.-N. J. Regional Gas Sales Conference, Essex & Sussex Hotel, Spring Lake, N. J.  
21-26 •Association Technique de L'Industrie du Gaz en France, Lyon  
24-25 •Michigan Gas Association, annual convention, Grand Hotel, Mackinac Island, Mich.

## JULY

June 27-July 1 •American Society for Testing Materials, annual meeting, Hotel Chalfonte-Haddon Hall, Atlantic City, N. J.  
June 28-July 1 •American Home Economics Association, San Francisco, Calif. (A. G. A. will exhibit)

## AUGUST

7 •National Association of Railroad and Utilities Commissioners, Hotel Cleveland, Cleveland, Ohio

## SEPTEMBER

6-8 •Mid-West Gas Association School and Conference, Iowa State College, Ames, Iowa  
7-9 •Pacific Coast Gas Association, Santa Barbara, Calif.  
9 •New Jersey Gas Association, Monmouth Hotel, Spring Lake, N. J.  
9-10 •The Maryland Utilities Association, fall conference, Cavalier Hotel, Virginia Beach, Va.

## OCTOBER

13-14 •Texas Mid-Continent Oil & Gas Association, annual meeting, Rice Hotel, Houston, Texas  
17-20 •A. G. A. Annual Convention, Chicago, Ill.  
17-21 •National Metal Exposition, Cleveland, Ohio (A. G. A. will have combined exhibit)  
24-28 •National Safety Congress, Morrison Hotel, Chicago, Ill.

## NOVEMBER

7-11 •National Hotel Exposition, New York, N. Y. (A. G. A. will have combined exhibit)

1950

## MARCH

23-24 •New England Gas Association, Hotel Statler, Boston, Mass.  
27-29 •Southern Gas Association, Galveston, Texas

# Personnel service

## SERVICES OFFERED

**Manager-Engineer**—Extensive training and experience in management and operation of Natural Gas Properties. Experience includes high and low pressure distribution design, sales and commercial activities. 1610.

**Mechanical Engineer**—Young veteran, recent graduate. No experience in engineering field. Looking for position with future in power or refrigeration and air conditioning fields. Prefer New York area, but willing to travel anywhere in U. S. after June. 1611.

**Engineer**—Desiring pipe line work—general construction work. Graduating (Civil Engineer) from Yale, June 1949; five summers in municipal pipe work. 1612.

**Executive Engineer** with Mechanical Engineering degree and professional engineering license. 12 years' experience consisting of research and testing work at the A.G.A. Laboratories, consulting work and the design, development, and production of gas heating equipment. Experience also includes the advertising, promotion and sale of gas heating equipment. 1613.

Assistant to President of manufacturing company was formerly successful industrial gas engineer and sales supervisor. Has pined for his "first love" ever since the "divorce" and wishes to return to position in or related to gas industry which will permit him to maintain present rate of income. 1614.

**Junior Chemist**—B.S. in Chemistry, College of the City of New York, 1949. Conscientious, ambitious veteran, single. Majored in Organic Chemistry; Organic Analysis. Also have one

year of Biochemistry. Prefer New York Metropolitan Area, but will accept out-of-town position. (25). 1615.

**Public Utility Accountant and Auditor**—Now available for any phase of utility operating or holding company accounting—property, customer, general. Methods and systems work, studies on depreciation, maintenance, original cost, financing, etc. Administrative ability; willing to travel; twenty-five years experience principally with utilities; salary requirements moderate. (45). 1616.

**Superintendent** with water, coal and propane gas manufacture, and distribution experience. Graduate engineer, Professional Engineer license; Single, Veteran. 1617.

**Chemist, B.S.**, 1949. Had qualitative organic analysis and instrumental analysis. Good background in mathematics. Prefer position within commuting distance of N. Y. C. 1618.

**Chemical Engineer**—Will graduate Syracuse in June. Desires position in technical sales field; course includes chemical processes, operations, instrumentation and design. Prefers East Coast; willing to travel anywhere. Veteran. (23). 1619.

## PLACING TRAINED PERSONNEL

Whether it is a "man for the job" or a "job for the man," A. G. A. headquarters is equipped to assist through the advertisements which appear on this page.

Key numbers mutually protect both parties from annoyance and possible embarrassment.

A.G.K.

## Chemical and production

(Continued from page 34)

velop standardized laboratory techniques for the classification of oil-gas and water-gas tars.

"The economic possibilities of improved tar credits should be more attractive for base load high Btu oil-gas operations where the ratio of tar yield to gas is high," Mr. Kinney pointed out. An interesting question, he said, is posed by the possibility that the Hall process may increase the homogeneity of cracking and thus improve both the yields and the quality of the tar by-products.

A brief progress report on recent developments in the treatment and dehydration of tar was presented by R. Van Vliet, New York & Richmond Gas Co., chairman, A. G. A. Subcommittee on Tar. Noting recent interest in centrifuging as a tar dehydration method, Mr. Van Vliet said "the most difficult problem is how to dehydrate the viscous tar emulsions made in water gas plants using heavy oil. . . . The dehydrating results reported by the seven gas plants are determined largely by the size of the

six control nozzles used in the centrifuge. The larger the nozzles the greater will be the output per hour and the longer will be the runs between cleanings; but as the size of the nozzle is increased, so will the water content of the finished tar be increased." All seven have been run at 800 to 1,000 gallons of finished tar per hour, he reported.

Concluding feature of the conference program was the description of a supervisory development program by Wallace G. Strathern, Eastern Gas & Fuel Associates, Boston, who cautioned the delegates to avoid a "schoolroom atmosphere in presenting such a program." Training methods include "telling, showing and discussing," Mr. Strathern said, and each is important. He gave details of a human relations discussion program presented to several hundred supervisors last year.

Many of the conference papers and reports have been printed and are available at Association headquarters. This material and the information on tap at the informal luncheon conferences gave convincing evidence that technology in the gas industry is on the march.

## POSITIONS OPEN

One Manager and one Salesman for gas properties. Vermont conversion to propane-air. 0552.

**Salesmen**—for Midwest States and Pacific Coast territories. Excellent opportunity for man familiar with distribution phases of gas industry to sell to gas companies, control manufacturers and petroleum industry. Product is well known and well advertised. Old established company. Salary, commission and expenses. Write complete details of background and experience. 0553.

**Service and Personnel Superintendent**—To make headquarters in New York for national organization and spend half time traveling on supervisory work. Must be under 40 and have good gas appliance service experience. State precise salary, starting pay expected, education and former employment. 0554.

**Merchandiser**—Large Eastern gas utility seeking experienced man for promotional work in Sales Department. Must be trained in contacting dealers and distributors and have ability to train retail sales force. 0555.

**Engineer**—experienced in gas distribution operations and appliance servicing; excellent opportunity in active, growing organization for young man capable of planning and supervising large scale operations; must be free to travel. Applications should give experience, education, age, and salary expected. 0556.

**Assistant Director**—in the Home Service Department of a large eastern gas utility. Applicant should hold a B.S. degree in home economics and be experienced in work of a supervisory nature in a similar field. 0557.

## Monthly wins award

(Continued from page 16)

to obtain recognition of company magazine as an increasingly vital factor in management communications. Combined circulation of such publications in the United States and Canada, according to I.C.I.E., is about 50 million. This is more than the combined daily circulation of this country's daily newspapers and more than two and one-half times the combined circulation of *Time*, *Life*, *Reader's Digest*, *Saturday Evening Post* and *Collier's*.

This year's magazine contest was conducted by the Southern Industrial Editors Association, an I.C.I.E. member. In the course of the contest, faculty and students of the schools of journalism at University of Georgia and Emory University reviewed and informally graded the publications. Entries were also examined by the contest committee and finally rated by the contest judges.

Judges were: Ernest H. Abernethy, publisher of ten trade magazines; Floyd K. Butkette, acting dean, Emory University, division of journalism; Wright Bryan, editor, *Atlanta Journal*; John E. Drewry, dean, University of Georgia School of Journalism; Gussie O. Jones, advertising manager, Atlanta Gas Light Co.; Richard N. McArthur, president, Higgins-McArthur Co., creative printers; Ralph McGill, editor, *Atlanta Constitution*; Sam Myrick, associate editor, *Macon Telegraph* and Harold Sheffield, Atlanta commercial artist.

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